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Texas Market Hit by Foreign Steel

Amount Imported Is Small in Relation to Total Consumption of State, But the Unfavorable Influence on Domestic Prices Is Marked

BY CLARENCE E. WRIGHT*

GALVESTON, TEXAS, Nov. 12.—For some time imports of foreign steel at the ports of Galveston and Houston have considerably exceeded those at any other ports in the United States, and the result is that Texas and the Southwest is one of the most difficult sections of the country as a market for American steel.

While the total amount of foreign steel coming in is not large in relation to the total consumption of the Southwest, the imported steel has had a disturbing effect on prices. Indications are that imports of foreign steel will increase during the next year because of better arrangements that are being made for the distribution of such products as can be brought in cheaply.

Warehouse to Handle Foreign Steel

Foreign steel was brought in occasionally at Texas ports even before the war, but only within the last three or four years has European competition shown signs of becoming a serious factor in the Southwestern steel market. This business has developed now to such an extent that the Markle Steel Co., Houston, Texas, is erecting an all-steel warehouse, 102 x 410 ft., which will carry full stocks of imported steel in all of the finished forms that can successfully be sold here, and this steel will be distributed in the regular warehouse manner at prices equivalent to American mill prices plus the freight, with no warehousing differential. C. N. Markle, who heads the Markle Steel Co., was for several years president of the Texas Carnegie Steel Association, which is the Texas warehouse distributor for the mills of the Carnegie Steel Co. Since his retirement from that position, he has been regularly importing steel from Germany, which has been sold to Texas jobbers and manufacturing consumers in increasing volume.

Texas is essentially a warehouse territory because many of the manufacturing consumers of steel are

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THE Harbor at Galveston, Where Sometimes as Many as 100 Ships Are Loading Cotton or Awaiting Cargo. These ships, rather than to return from Europe with sand or water ballast, are making very low rates on steel, thereby making it possible for foreign steel to enter Texas and the Southwest at prices much below those of American mills

small and prefer to purchase their raw materials in small lots rather than anticipate their requirements and buy in large quantities, as they must do if they purchase mill shipments from abroad. It is this policy of small-lot buying which has kept importations as low as they have been. Mr. Markle recognized the situation and determined that the most successful way of distributing foreign steel in this district was to put it in warehouse and give customers service as well as low prices.

Foreign Steel Now in Better Favor

For a time the buying of foreign steel got a "black eye," and it was thought that buyers would largely confine their purchases to American mills because of the unsatisfactory shipments from abroad and the condition of some of the shipments when they arrived. A case is cited wherein a foreign shipment promised in six to eight weeks was not completed much short of one year, and in several instances foreign bars came so badly bent as to be almost unusable. These difficulties appear to have been largely overcome, and until there is a revision upward in the duties on some forms of finished steel the chances favor an increase in the amounts that will be received.

American mills are fully awake to the situation, but so far they have put forth no great efforts to stem the tide of imports, except in the case of cotton ties. Presumably their attitude is that they do not care to enter into price competition with foreign steel to the extent that they would have to if they were to try to keep it out entirely. They seemingly prefer to take what tonnage comes to them naturally and with a fair profit, knowing full well that few jobbers and consumers will want to pass up their American mill connections entirely and depend upon foreign steel for their full requirements.

Bars, Shapes and Cotton Ties the Chief Products

As yet only a few products are seriously affected—principally bars, shapes and cotton ties. On shapes and bars it would have been necessary in some cases for Eastern mills to sell at a price equivalent to 1.35c., f.a.s. Philadelphia to meet the lowest prices that have been quoted on foreign steel namely 1.65c., Galveston, duty and all other charges paid. Pittsburgh and Chicago mills would have had to accept an even lower mill price because of their high freight rates to this State. While American mills have shown a disposition occasionally to make concessions here on desirable tonnage, they have not gone the full length to meet the foreign prices. The case of cotton ties is an exception. For several years the importers of European cotton ties have awaited the announcement of the American mill price and then have come out with a lower price, thereby taking a considerable share of the business. This year the American mills made no early price announcement, but waited for the German and English mills to name their prices. When $1.34 per bundle of 45 lb. was finally named by the importers, the American mills came out with a price of $1.25, f.o.b. Galveston, New Orleans or any other Southern port. Government customs statistics show that 4410 tons of hoops, bands and cotton ties (mostly cotton ties) came in at Galveston and Houston during the first seven months of this year, there being no imports in August and September.

State Uses 750,000 Tons of Steel Annually

During the first nine months of 1925 the total steel imports at Galveston and Houston (figures for October not being available at this writing) were slightly in excess of 25,000 tons. It is estimated that the total consumption of steel of all forms in the State in a good year is about 750,000 tons, from which it might appear that the imports are too small to be as serious a factor as they are made out to be. But when foreign bars and shapes can be sold for delivery at Galveston and Houston at $33 to $35, against $54 to $56 from American mills, the potential results are clearly in evidence. The fact that foreign steel is now quite generally satisfactory to Texas buyers is a point that must be reckoned with.

Of the 750,000 tons estimated by steel men here as the annual consumption of the State, a good share, possibly 200,000 tons, is in fabricated structural steel. The oil companies are large buyers of steel tanks, most of which are fabricated at Northern plants and shipped here ready for erection, and this tonnage accounts for a considerable part of the total amount of structural steel work. There has also been a building boom in some of the leading cities of the State, which are making records in growth of population not equalled outside of Florida. A 35-story office building and a 22-story newspaper and office building in Houston and a 17-story hotel in Dallas, now in course of erection, are examples of the large buildings that are being constructed. There are several good-sized structural steel fabricating shops in the State and a number of smaller ones, but some of the steel erected here is fabricated elsewhere, as, for example, the 35-story building now going up in Houston, for which the American Bridge Co. furnished the steel.

Several Large Fabricating Plants

The largest fabricating interest is the Mosher Steel & Machinery Co., Dallas, which, with its subsidiary, the Houston Structural Steel Co., with plant at Houston, has a monthly capacity of 2500 tons. Austin Brothers, Dallas, and the Pennsylvania Car Co., Beaumont, also have fairly large capacity, the latter having furnished all of the steel for the 22-story Post-Dispatch Building in Houston. Practically all of the fabricating shops in the State are using some foreign steel, and this is a factor in the figuring of all building work. The imports of structural steel in the first nine months of the year at Galveston and Houston totaled 11,305 tons, but this undoubtedly included some bar-size shapes, which are listed by the customs offices in the same bracket with large shapes.

The common quotation on foreign shapes is 1.75c., c.i.f. Galveston or Houston, duty paid, but sales have been made at as low a figure as 1.65c. Even with the railroad freight rate of 42.5c. per 100 lb. to Dallas, the delivered price at that point is about $10 a ton below the delivered prices of American mills having the lowest freight rate.

Charge of "Dumping" Not Sustained

Equivalent prices have been quoted on imported bars. The situation is so serious for the only rolling mill in the State, the Texas Steel Co. at Forth Worth, that George W. Armstrong, president of that company, last spring made a protest to the Federal Tariff Commission and to the Treasury Department on the ground that the low prices on foreign bars constituted a violation of the anti-dumping act. So far Mr. Armstrong apparently has failed to convince the Government authorities that the imports constitute "dumping," or that the duties should be raised. A few months ago he appeared before the Texas Railroad Commission in an effort to have higher rates apply on foreign steel when carried on Texas lines than the rate on domestic steel. In other words, he asked for a lower rate on the products of his own plant and a higher rate on imported steel, so that the difference in selling prices now existing would be wholly or partially wiped out, especially in north Texas. The Texas Railroad Commission took no action. Mr. Armstrong's plant is equipped with an electric furnace for making steel from scrap, and his sole product is bars.

Steel as Ballast Takes Low Rate

The reason for the low prices on foreign steel here, lower in fact than at Atlantic and Pacific Coast ports, is not hard to find. The cotton shipping season, which lasts from six to eight months, brings many ships to Galveston, Houston and other Southern ports without cargo. Rather than load with sand or water ballast, these vessels make extremely low rates on steel. The average rate is $3.50 per gross ton from Antwerp to Galveston, but in a few cases rates as low as $2.85 to $3.25 have been given. As the lowest rate from any mill in this country to Dallas is 69.5c. per 100 lb., it will readily be seen that foreign steel can absorb the rail rate of 42.5c. per 100 lb. to points

in the Dallas rate territory and still be sold at prices considerably under delivered prices on American steel. Government figures show that upward of 1,300,000 bales of cotton were exported from the ports of Galveston and Houston in the three months of the cotton shipping season ended with October, and November shipments promise to be large. At times as many as 100 vessels are loading or awaiting cargo in the harbor of Galveston, which shows that so far as ship space is concerned, the opportunity for greatly increased imports of steel is wide.

HOUSTON and Dallas and Some Other Texas Cities Have Enjoyed a Building Boom Calling for Fairly Large Quantities of Structural Steel. These views show the type of buildings being erected in Houston, one of which is to be 35 stories high

Stock of Imported Pipe Carried at Houston

Large tonnages of steel pipe are used in the Texas oil fields, but up to this time the imports have been almost negligible. The oil companies are said to prefer buying American steel as a matter of policy, but the American Seamless Tube Corporation, the main office of which is in the Woolworth Building, New York, seems to think sufficiently well of the outlook to have opened an office in Houston, and it is carrying a stock there of more than 1000 tons of various sizes of oil well casing and drill pipe. This company is the American representative of the Rohren-Verband of Germany and the French Syndicate, which together control the output of the Continental mills making seamless steel pipe by the Mannesmann process. The American Seamless Tube Corporation has already brought from 15,000 to 20,000 tons of this pipe into the United States, most of which has been landed on the Pacific Coast. Its imports into Texas have not exceeded 2500 tons. As the Youngstown Sheet & Tube Co. and the Pittsburgh Steel Products Co. are now putting in equipment for the making of large tubing by the Mannesmann process, the European mills may reap only a small share of American business.

Steel Plates Sold at Low Prices

Although steel plates could be landed at Texas ports at about the same prices, not counting the duty, as are quoted on bars and shapes, the duty of 50c. per 100 lb. has kept them out. Eastern plate mills have quoted very low prices for delivery in this State, in a few instances business having been done on the basis of 2.20c. per lb., delivered Galveston or Houston. In one or two instances even this figure was shaded. As the water freight rate from Philadelphia or Sparrows Point, Md., is 30c. per 100 lb. this means 1.90c. at these points. Receipts of plates from abroad in nine months of this year totaled only 69 tons.

Imports of rails and splice bars in the nine months were 3335 tons, but most of these were light rails used by lumber and other industrial companies. One railroad is reported to have bought a small tonnage of heavy rails, but was so severely criticized that no other purchases of heavy rails have been made.

Texas is a large consumer of galvanized sheets, which are extensively used for building purposes. Imports in nine months were 1413 tons, this including sheets of all kinds. However, the sheet mills represented here do not fear that foreign competition will become particularly serious, as American sheets are generally recognized as a superior product.

Small Imports of Other Products

Negligible quantities of other steel products have been brought in. From January to September, inclusive, they were as follows: Blooms and billets, 714 tons; iron bars, 299 tons; tubes, 1386 tons; wire rods, 20 tons; nails and screws, 351 tons; wire rope, 89 tons. Belgium and Germany have been the principal sources of supply, but the United Kingdom has also contributed a fair share, with France and Sweden also adding to the tonnage.

The principal importers are the Markle Steel Co., Houston; the Black Hardware Co., Galveston, and F. R. Phillips & Sons Co., Philadelphia. The Phillips company carries a small stock of bars and shapes on dock at Galveston, from which it sells in warehouse shipments. The Markle Steel Co. handles mostly Krupp and Thyssen products, and when it occupies its new warehouse about Jan. 1 it will receive regular ship-

ments from those German mills. The Black Hardware Co. conducts a jobbing business from Galveston and is one of the large distributors of imported steel.

Foreign Pig Iron Also Coming In

In addition to steel imports small lots of foreign pig iron have been coming in, most of it from India. The total for the year up to the end of September was 4936 tons, of which 3938 tons was from India and 998 tons from Germany. As there are only a few foundries in this State, this probably represents a larger share of the total consumption of pig iron than the relation of steel imports to the total steel consumption.

New Orleans Steel Imports Smaller

Conditions somewhat similar to those prevailing in Texas are also to be found in the New Orleans district, but modified somewhat by the fact that the New Orleans district consumers are closer to the Birmingham mills and thereby enjoy lower freight rates on domestic shipments. In the same period of nine months in which Galveston and Houston imported 25,000 tons of steel, only 13,000 tons came in at the port of New Orleans. The latter, however, had heavy receipts of ferromanganese—12,018 tons from England, 399 tons from Germany and 1583 tons from Norway—presumably for the steel plants of the Birmingham district. Imports of steel bars at New Orleans in the nine months were fairly heavy—6092 tons—while receipts of shapes were only 900 tons, and imports of other forms of steel were small, except rails, of which 2491 tons came in.

A complicated railroad rate structure, together with high freight rates from all American mills, makes the Texas situation very difficult for American mills. In a State which is growing both industrially and agriculturally there are bound to be increasing uses for steel. Doubtless American mills will find ways of preventing the encroachments of foreign steel from becoming too great, but at present few of them are making any effort to obtain business at any great sacrifice of price. To be sure much of the heavy tonnage coming into Texas, such as oil pipe, rails and structural steel, will continue to go to American mills regardless of price, but much of the warehouse business seems in danger of larger absorption by foreign steel companies.

A SHIP Channel to Houston Makes It Possible to Land Foreign Steel There Equally as Cheap as at Galveston. Houston is a fairly large consuming center and the market there for American steel has been undermined. These views show ships at wharf at Houston loading cotton

Operations Suspended at Riverdale Iron Mill

The Riverdale Rolling Mill Co., Riverdale, Ill., producer of bar iron, suspended operations on Nov. 1. An inactive market and low prices are given as the reasons. Officials state that operations will be resumed when market conditions become more favorable. This mill, which has an annual capacity of 11,000 tons of finished rolled products and was constructed in 1907, passed to the control in 1917 of Henry A. Lanman, Edward A. Lanman and Charles B. Lanman, who are its present owners.

To Hold Exposition of Machine Tools

To attend the exhibition of its machine tools in operation at its Hamilton, Ohio, works, on Dec. 1, railroad officials and executives of industrial concerns have been invited by the Niles-Bement-Pond Co.

Following the exhibition the company will hold a two-day sales conference of its district managers.

Automobile production in October is reported by the National Automobile Chamber of Commerce to have broken all records, at 454,327 cars, a gain of 49,951 cars over the 404,376 cars in May, the previous high.

Scraping Defects from Hot Steel

Surface Flaws Removed During Rolling— Quality Improved and Yield Bettered

MANUFACTURE of steel into various forms often is hampered by defects in the finished product, even in those cases where the defects in the metal can be discovered before reaching the finished stage. In many other cases it is not until the final inspection, after the maximum expenditure has been made for labor, fuel and power, that certain flaws are detected which result in the material being rejected, or being classified under a different grade and sold at a lower price.

Many of the defects which appear at various points during the process of conversion from ingots to finished product can be traced to the metallurgical practice, including melting, pouring, the design and condition of molds, etc. Some may be traced to the soaking pits or reheating furnaces, and a great many to the rolling. The most common defects are cracks which did not weld, seams, lines, scabs, blisters, slivers and scale, and these are due to the rolling operation.

Methods used to overcome many of the troubles arising from defective steel include chipping the blooms, billets and slabs to remove cracks, seams and scabs. Various means have been used to remove a part of the scale which arises during rolling. These include the use of water on the steel, chilling to raise scale, flooding at various passes with high-pressure water, use of steam, rock salt, etc. In addition, different ways of turning the blooms, billets, etc., have been tried and slabs are set on edge for certain passes, to crack off the scale by a slight reduction in area.

For products where the surface is of extreme importance billets and bars are pickled, and in the case of the manufacture of certain grades of automobile sheets, "breakdowns" also are pickled. Some of the steel companies in Europe are turning ingots in a lathe to remove the outside surface, before heating them for piercing and conversion into seamless tubes. The object of this is to facilitate the operations of piercing, pilgering, rolling, drawing, etc., and to increase the yield from ingot to finished product.

Where scale, slivers and scabs are removed during the rolling of billets there is a material improvement in the quality of the finished product, and in many cases an increase in the yield of products from billets. Similarly if, during the process of rolling sheet bars for sheets and tin plate, and slabs for hot strip, the top and bottom and edges of the bars are cleaned of heavy scale and scabs and slivers, there will be a marked gain in the quality and surface of finished material, and an increase in yield of finished product from bars.

Scraping Away Defects During Rolling

A scraping device has recently been perfected, whereby billets and bars can thus be cleaned during the process of rolling, without reducing the tonnage produced.

For billets, the scraping device consists of one or two units per billet mill, each unit consisting of two vertical- and two horizontal-acting knives. The first set scrapes the billet top and bottom as it leaves the preceding pass, and the second scrapes the billet on the sides. Fig. 1 shows the apparatus between stands No. 3 and No. 4 of a six-stand continuous mill. The

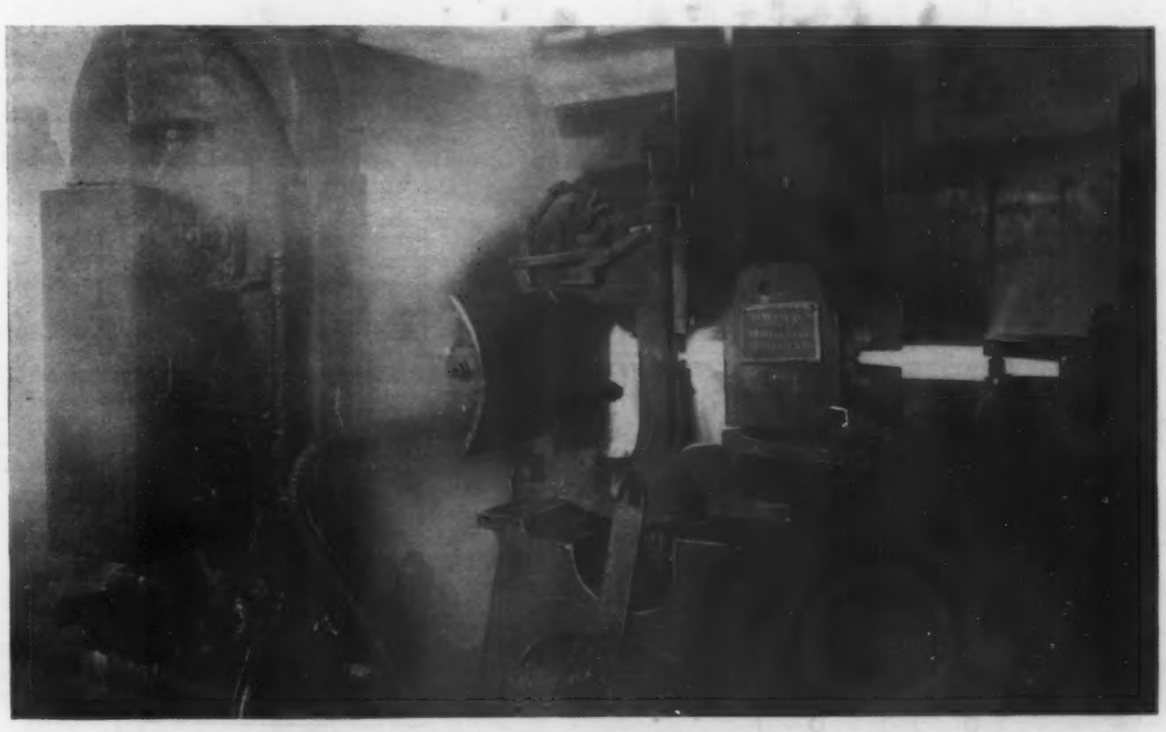


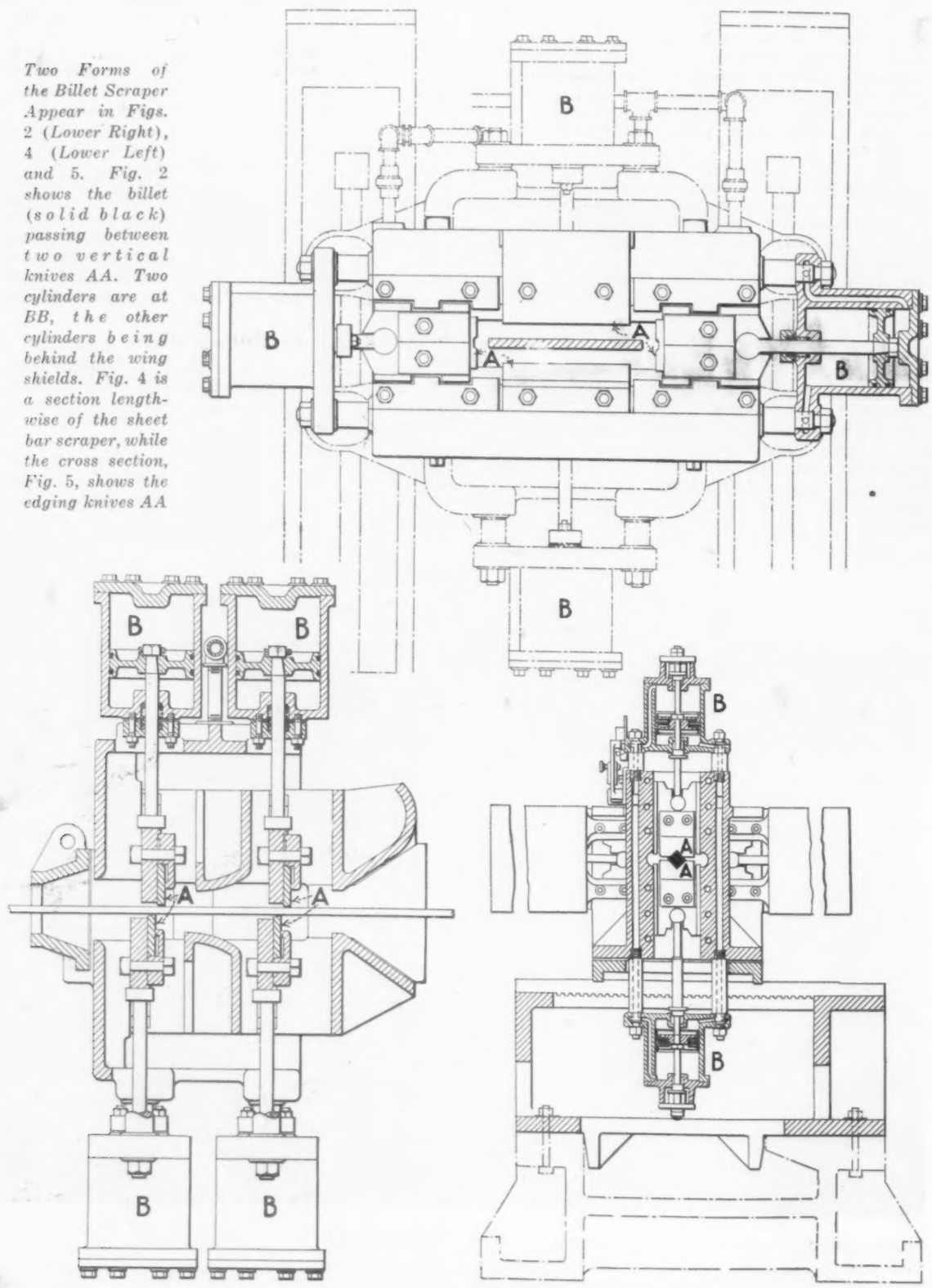
Fig. 1—Billet Scraper Between Passes on Continuous Billet Mill. The billet, which at this point is 2½ in. square, is moving from right to left. The scraping knives are pressed against it by four air cylinders, top, bottom and both sides. The upper cylinder appears behind the shield at upper center of photograph

billet being scraped is 2½ in. square, and the finished size on pass No. 6 is 1¾ in. square. In this installation a second scraper is installed back of pass No. 6.

The cylinders which actuate the knives are operated by air and can be adapted to be controlled automatically, closing the knives after the billet enters both sets of knives, and releasing them after the end of the billet has been pulled through. The power required for drawing the billet through the knives is small and is furnished by the rolls. Fig. 2, a cross sectional elevation on the center line of the top and bottom knives, illustrates the construction and shows that the knives and their holders can be stripped out of the machine between billets, during operation, without interfering with the tonnage.

For sheet bars, the device consists of two sets of vertical-acting knives, one preceding the other by about 9 in. and operated by air, as in the case of billets. This also can be made automatic and the knives made to close and open in proper relation to the beginning and end of the sheet bar. For the best results on sheet bars it has been found necessary to install two scraping

Two Forms of the Billet Scraper Appear in Figs. 2 (Lower Right), 4 (Lower Left) and 5. Fig. 2 shows the billet (solid black) passing between two vertical knives AA. Two cylinders are at BB, the other cylinders being behind the wing shields. Fig. 4 is a section lengthwise of the sheet bar scraper, while the cross section, Fig. 5, shows the edging knives AA



units, one either in front of the last pass or next to the last pass, and the other preceding the final scraper by one or two passes. Fig. 3 illustrates the rolling of a sheet bar with the scraper on the entering side of No. 4 stand of a six-stand mill, scraping the bar at a thickness of 1 1/16 in., the bar finishing 11.5 lb. per ft. in stand No. 6. Fig. 4 shows this bar scraper in cross sectional side elevation.

Apparatus necessary to scrape the sides of the bars is comparatively simple, and in principle is the same as for the top and bottom except that only one set of knives is used. The side scraper is attached to and made an integral part of the second top-and-bottom scraping unit. In other words, the cleaning of the edges of the bars is done at the same time the bar has its last scraping on top and bottom. Fig. 5 shows a front cross section and elevation of a side scraper.

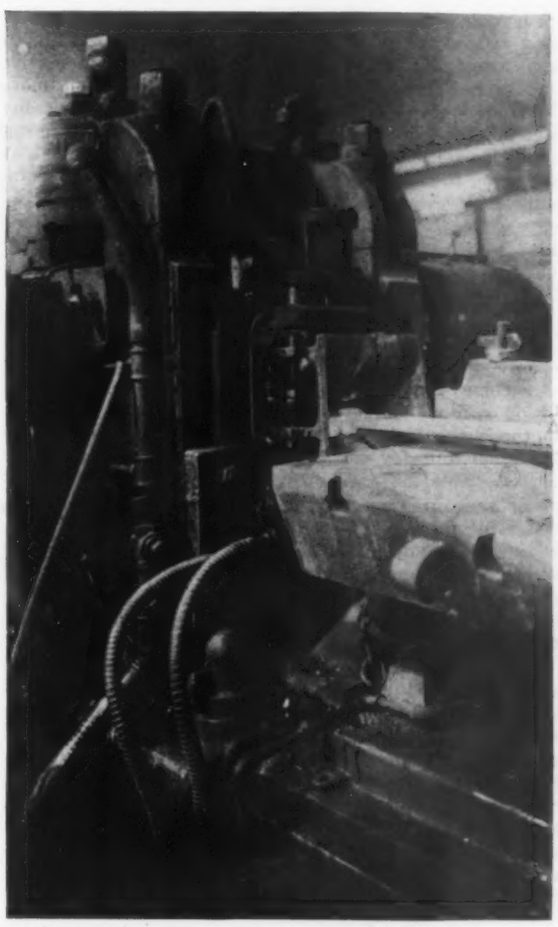


Fig. 3—Sheet Bar Entering Scraper Just Ahead of No. 4 Stand, Its Section Being 8 In. by 1⅞ In. (Final Thickness After No. 6 Stand to Be 11½ Lb. per Ft.) The two upper cylinders of the double set of top and bottom scrapers appear near top of mill housing

What Is Cleaned Away

When cleaning billets, if there are slivered places on any corner, or if there is a projecting fin on the edge of the billet or, as in many cases, a rolled-in fin on top or bottom, the scraping knives will as a rule scrape off this projecting material in similar manner to a tool in a lathe. Many of these slivers, fins, etc., are found in the sweepings after rolling.

Samples of the scrapings when rolling sheet bar show much coarser material for Unit No. 1 than for the succeeding Unit No. 2, and in the sweepings from No. 2 will be found scabs, slivers and pieces of metal which have been scraped off the edges of the bar.

Knives used for scraping billets and bars are of special steel. No water is necessary on the scraper and, although the knives show color immediately after completing the scraping operation, they have an opportunity to cool and lose their color before coming in contact with the next piece of steel. The knives for bars will scrape 1000 to 1500 tons per dressing and the life has been found to have a range of from 12,000 to 15,000 tons production.

Our illustrations are for installation of the scraper for both billets and sheet bars on a continuous mill. This type of mill lends itself readily to the standard scraper but, with certain modifications, the device can be applied to almost any type of bar mill.

In the plant where the scrapers were first installed, and where they have been in operation for a number of years, there has been a marked improvement in finished material and a decided increase in yield from billets and bars to rods and sheets. The records of the company show that, for rods and merchant products, there has been an increase in yield of 1.89 per cent after using scraped billets. In the sheet mill department, for a period of three years after installation of the scrapers, the average increase in yield from bars was 1.50 per cent over a similar period prior to their installation.

Frank L. Estep, president Bar & Billet Scraper Co., 40 West Fortieth Street, New York, is responsible for the new mechanical method of removing flaws.

Meeting of New England Foundrymen

Vincent P. Malcolm, metallurgical engineer, Chapman Valve Mfg. Co., Indian Orchard, Mass., and Cole Estep, vice-president Penton Publishing Co., Cleveland, were the speakers at the November meeting of the New England Foundrymen's Association, held Wednesday evening, Nov. 11. Mr. Malcolm first gave a brief description of the X-ray machines at Watertown, Mass., and at Long Island, which are used in connection with study of castings. He then, by the aid of lantern slides, told of work being carried on by his company in this connection and conclusions reached regarding shrinkages, stresses and external defects; causes for defects; and how proper location of gates, risers, etc., has been obtained from a study of castings by the X-ray.

Mr. Estep showed by charts the wide strides made in numerous other branches of the iron melting industry while the gray iron industry has been practically at a standstill. He suggested in a somewhat indefinite way what the gray iron foundry industry should do to remedy the situation, laying stress on technical study.

Zinc Institute Directors Meet

Directors of the American Zinc Institute held a meeting at the Hotel Statler, St. Louis, Friday, Nov. 6. After reports on the activities of the institute by the president and the chairman of several of the committees, it was decided that the slab zinc statistics should be released by night letter on the ninth day of each month and that the usual summary should be mailed at the same time to all names on the statistical mailing list.

The secretary of the institute, Stephen S. Tuthill, 27 Cedar Street, New York, accepted the secretaryship of the sectional committee on zinc coating of iron and steel under the procedure of the American Engineering Standardization committee and the sponsorship of the American Society for Testing Materials. This is the committee which is undertaking the national standardization of all zinc-coated material.

The board referred to the executive committee for decision the matter of the proposed exhibit of the institute of the products of the zinc industry at the Sesquicentennial Exposition to be held in Philadelphia, June to December, 1926.

The membership of the institute is reported as 210, of which 148 are active, 46 are associate and 16 are honorary members. The 1926 annual meeting was set for St. Louis on April 19 and 20, 1926.

Improvements in Automotive Steels*

Difficulties Due to Seams and Dirty Steel—Normal and Abnormal Steels—Effect of Heat Treatment

BY WALTER G. HILDORF

EVERYONE who has had experience with automotive steels has been confronted with problems which have been difficult to solve; in fact, many of them have never been solved. The result is that periodically these troubles come up involving, in many cases, an enormous expense until that particular heat of steel is gone.

The aim of this paper is to attempt to throw some light upon these problems and to elaborate upon them in the hope that we may have the cooperation of the steel companies in bringing about their solution.

Fig. 1 (Left)—Showing Dirty S.A.E. 1015 Steel; X-100, not etched. Fig. 2—Showing Non-Metallic Inclusions in S.A.E. 3140 Steel; X-100, not etched

In general, I believe that the main problem, at least for the present, is one of obtaining greater uniformity from heat to heat, rather than attempting to produce new steels. In other words, it should be possible to obtain heat after heat of the same steel which could be forged, treated and machined alike. Also it should be possible to use a standard heat treatment and obtain hardness and physical properties within the limits usually allowed for that particular steel.

Before enumerating the various improvements needed, it should be stated that they are given with a full realization that the steel men have their troubles. The quality of their raw materials is a variable factor, the temperature at which they work is very high, involving many difficulties; the pouring and rolling offer still more problems.

In addition, present day metallurgy is so new that metallurgists do not agree on all specifications. However, difference of opinion is one of the penalties of progress. If everything was standardized and everyone agreed, there would be no progress. In spite of difficulties and difference of opinion, the automotive metallurgist should have a higher quality and more uniform steel to meet the requirements of present-day automotive vehicles. The demands are more exacting and the service more severe than in the past. For example, the last member of the family, the bus, probably receives more severe service than any other because it must run at passenger car speed, with a truck load in all kinds of weather and in many cases over very bad roads.

Trouble from Seams and Spongy Centers

In so far as the fabrication of steel is concerned, seamy stock probably causes more trouble than any other one thing in the drop forge plant. This is a condition which should be improved. The inspection methods should be such that no seamy material leaves the steel mill for use in parts where seams would be objectionable, as in gear forgings.

The grain structure in steel should be uniformly dense in order to have uniform strength, hardness, resistance to wear and freedom from warpage. Spongy centers are usually more pronounced in the larger sizes. A good example of this is in die blocks which often show spongy spots which will wear much faster than the more dense part of the block.

I believe it is generally agreed that any of the steel mills will meet requirements as to chemical composition. However, the analysis tells only a part of the story. The chemist will tell us whether we have the correct amounts of such elements as carbon, manganese, nickel, etc., but he does not tell us if the steel contains a dangerous amount of foreign matter such as manganese sulphide, oxides or slag. Or, to use the common term, he does not tell us whether the steel is dirty or not.

Dirty Steel

Non-metallic inclusions may be divided into three classes according to Giolitti, in his "Heat Treatment of Soft and Medium Steel":

> a.—Drops in suspension, of size larger than a certain critical dimension, will ascend with relatively high velocity toward the surface of the bath, there to unite with the floating layer of molten slag.
>
> b.—The same thing will happen for the drops resulting from the agglomeration of the smaller, step by step, as their increasing dimension will have reached the critical.
>
> c.—Suspended droplets, which have dimensions equal to or smaller than the above indicated limit, will rise in the bath with velocities extraordinarily lower than that reached by the larger drops mentioned in (a) and (b).

Therefore, after a certain period of time, the undisturbed bath will no longer contain inclusions of molten slag, except those which are in the form of minute drops whose dimensions are equal to or smaller than the "critical."

Giolitti also states that "under normal conditions of temperature and for steels of ordinary composition, the time necessary for substantially complete separation of the inclusions indicated in (a) and (b) is relatively short and of such an order as to render it possible in practice to maintain the molten metallic bath quietly so as to eliminate those inclusions."

It should be possible then for the steel companies to furnish steel without large inclusions. However, it is not possible to make steel entirely free from minute inclusions, because it would be practically impossible to keep the bath molten and quiet for a time long

*A paper, slightly abridged, presented at the fall meeting of the American Gear Manufacturers Association at West Baden, Ind., Oct. 1 to 3. The author is metallurgist, Reo Motor Car Co., Lansing, Mich.

enough to allow their separation. Figs. 1 and 2 show two examples of non-metallic inclusions in some automotive steel. In justice to the steel companies it should be said that there has been considerable improvement in the cleanliness of steel, yet the average product is not as clean as it should be.

Normal and Abnormal Steels

The terms normal and abnormal, as generally used, differentiate between a steel which will harden 100 per cent hard and a steel which will have soft spots after hardening in the ordinary way—without the use of cyanide or salt baths.

It has been demonstrated that it is often possible to harden an abnormal steel 100 per cent hard by the use of cyanide or salt baths. The Bureau of Standards has investigated this and states, in their second progress report on "The Investigation of the Influence of the Character of the Steel Used on the Results Obtained in Carburizing," that "further quenching experiments of carburized normal and abnormal steel were made which indicate that abnormal steel is more prone to give soft spots than normal steel."

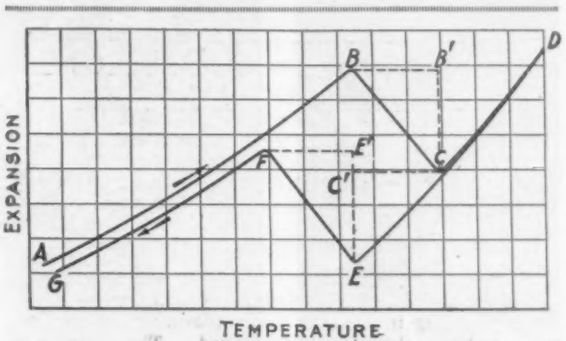


Fig. 3—Theoretical expansion curve taken from Bureau of Standards Bulletin No. 433

A large number of the steel mills can furnish the normal steel. Since this is true, it would seem desirable to use this steel rather than abnormal steel, because it would not be necessary to use salt or cyanide baths for hardening. In other words, if one already had furnaces which were heated with oil, gas or electricity, they could be used for successfully hardening normal steel but they would not give satisfactory results with the abnormal steel.

We have used normal steel since about May 1, 1921, obtaining very satisfactory results as to warpage and hardness using either oil, gas or electricity for heating. The following routine is adhered to in checking steel for normality:

(a) Carburize at 1700 to 1725 deg. for 8 hr., using a carburizing material which will give a case containing considerable excess cementite.

(b) The boxes are removed from the furnace and the samples are allowed to cool in the box.

(c) A section of the sample is cut out with a hack saw.

(d) The sample is polished and then etched with 3 per cent nitric acid in alcohol or with 5 per cent picric acid in alcohol.

(e) A microscopic examination is then made of the case, the junction of the case and core, and the core.

(f) The magnification is 100 dia. on all except cases of alloy steels, where it was necessary to use 425 dia. in order to bring out the structure so that it was sharp or plain and comparable with the photomicrographs obtained on other steels.

Warpage of Steels

Considerable has been written, concerning the soft spots which are obtained when abnormal steel is hardened in the usual way, but little if anything has been written regarding warpage, although it seems to always accompany the abnormal condition of steel. This can be easily checked by making simple shapes of both the normal and abnormal steels and checking them for warpage after hardening.

One of the best checks that we have ever had was with an abnormal heat of S. A. E. 2315 steel which had been made into rear axle ring gears. The normal steel had an average hardness of 80 to 85 scleroscope. The abnormal steel had a hardness of 60 to 80 scleroscope and warped much more than the normal steel. Twenty-five of the gears were marked and put aside on the gear floor where they were kept until normal steel had been in use for about two weeks. Then these gears were mixed with the regular gears and sent to the heat-treating department after which they were inspected for hardness and warpage. The inspectors, without any knowledge of the fact that these gears were coming, scrapped 24 out of the 25 gears.

This phenomena of warpage can probably be explained by reference to three curves which have been taken from the Bureau of Standards Bulletin No. 433, "Thermal Expansion of a Few Steels."

Fig. 3 is a theoretical expansion curve for range 1112 to 1650 deg. Fahr. From A to B there is nearly uniform expansion as the temperature increases. At B the steel starts to go through the critical range and

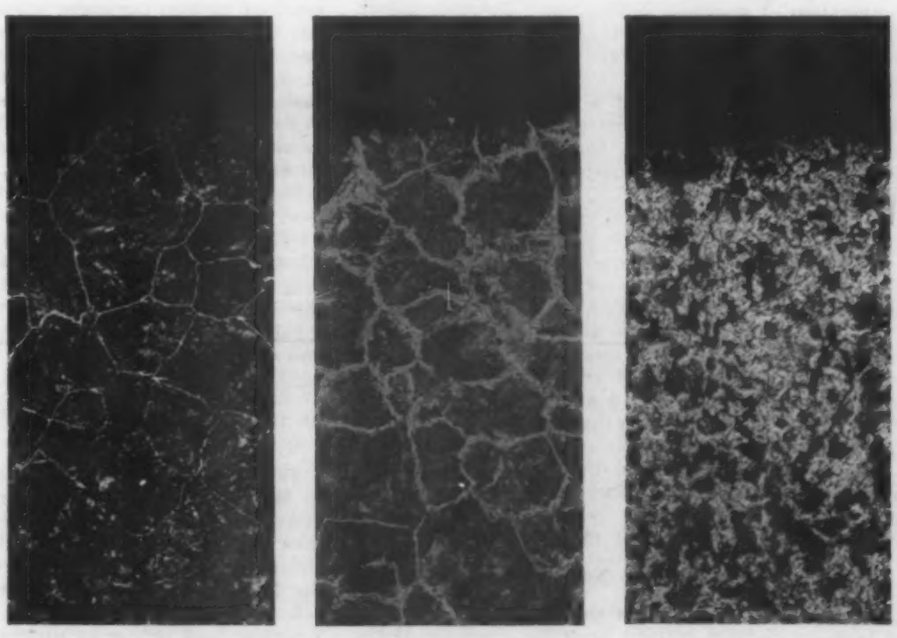


Fig. 4 (Left)—Normal Case of S.A.E. 1015 Steel. Note the sharp, definite grain boundaries. Fig. 5—An abnormal Case of S.A.E. 1015 Steel. Note the partially broken down grain boundaries. Fig. 6—Very Abnormal Case of S.A.E. 1015 Steel. Note the completely broken down grain boundaries. All X-100, etched with 3 per cent nitric acid in alcohol

contraction takes place until the point C is reached which is the end of the critical range. From C to D there is a practically uniform expansion with increase of temperature. From D to E contraction takes place. At E the steel starts to go back through the critical range; from E to F then there is an expansion. At F the critical range is passed and the steel contracts from F to G in a line which is practically parallel to A-B.

[In the original paper the author presents two other curves for two different kinds of steel.]

Suppose a steel were quenched at the temperature D and it hardened uniformly. All parts of uniform hardness, such as the outside of a gear, would no doubt have all expanded to some point between E and F near E. When soft spots are examined under the microscope it is found that their structures are troostitic or a combination of troostite and sorbite. In other words, these soft parts have gone through a greater expansion than the harder parts, and therefore would cause warpage.

Fig. 4 shows the case of a normal S. A. E. 2315 steel. Note the sharp, definite grain boundaries. This steel hardened 100 per cent hard when heated in an electric furnace and water quenched. It had a scleroscope hardness of 95 to 105.

The case of an abnormal S. A. E. 1015 steel is shown in Fig. 5. Note the partially broken down grain boundaries. When heated in an electric furnace and water quenched, 20 per cent of its surface was soft. The hardness varied from 60 to 95 scleroscope.

The case of a much more abnormal steel is shown in Fig. 6. Here the grain boundaries are completely broken down. When heated and quenched, the same as the steels shown in Fig. 4 and Fig. 5, 50 per cent of its surface was soft. The hardness varied from 45 to 90 scleroscope.

The core was not shown in the preceding photomicrographs because it is believed that the core structure or grain size is not a reliable indication as to whether a steel is normal or not.

Distinguishing a Normal Steel

When deciding whether a steel is abnormal or not we base our decision entirely upon the condition of the excess cementite in the case. If the excess cementite exists as a sharply defined network, the steel is classed as a normal steel. The condition of the pearlite grains seem to also serve as a fairly reliable indicator of this condition. If the cementite and ferrite lie in straight parallel bands in all the grains, the steel is normal. If it exists as a jumble of parallel bands, it usually indicates that the steel is abnormal.

At one time it seemed to be generally believed that the core could also be used to indicate this condition. If the grains were large, the steel was supposed to be normal and if small, abnormal. However, it is possible to obtain a very fine grained normal steel and, since it has a much wider hardening range and is not so liable to be brittle, it seems a much more desirable steel to use.

The condition of abnormality does not seem to be confined to any particular class or type of steel. It has often been found in such steels as S. A. E. 5140 and S. A. E. 3140. Fig. 7 shows a normal case on S. A. E. 3140 steel, while Fig. 8 is that of an abnormal case of the same steel. The core structures are shown in Figs. 9 and 10. Samples of these steels were heated in an electric furnace to 1525 deg. Fahr., quenched in oil and drawn at 750 deg. Fahr. The normal steel had a hardness of 70 to 75, while the abnormal had a hardness of 55 to 70 scleroscope.

The abnormal condition can exist in many, if not all, kinds or classes of steel. Since it is more liable to give soft spots and cause trouble from warpage than the normal steel, the steel companies would perform a valuable service to the automotive industry if abnormal steels could be eliminated.

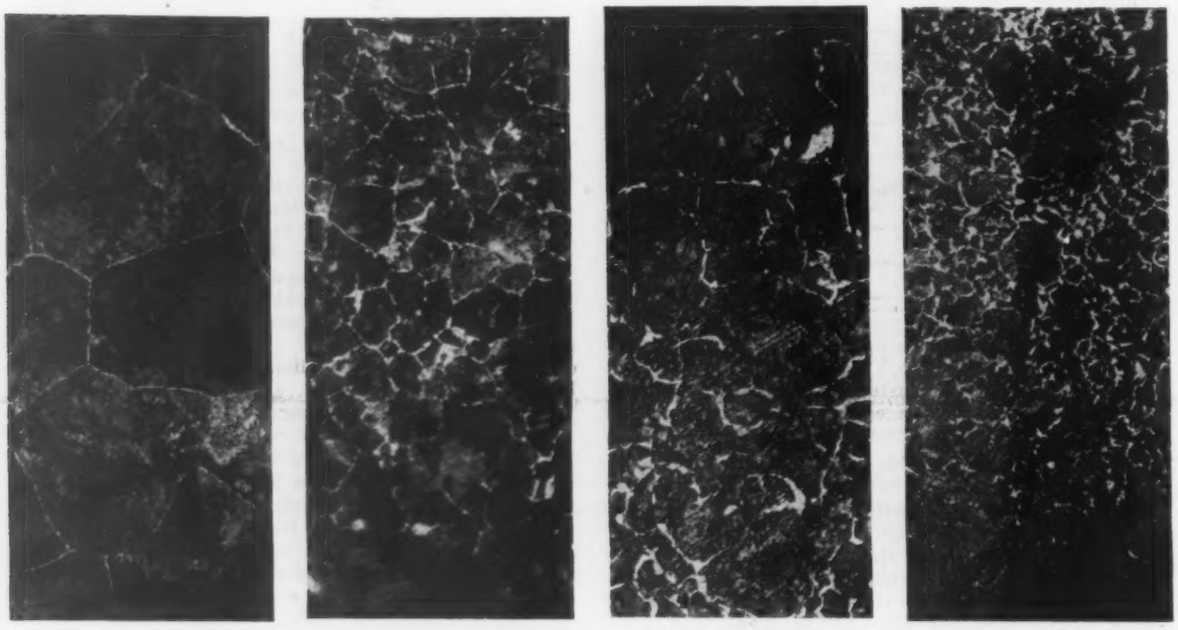


Fig. 7 (Left)—Normal Case, S.A.E. 3140 Steel; X-425, etched with 3 per cent nitric acid in alcohol. Fig. 8—Abnormal Case of S.A.E. 3140 Steel; X-425, etched with 3 per cent nitric acid in alcohol. Fig. 9—Normal Core of S.A.E. 3140 Steel (Core of Fig. 7); X-100, etched with 5 per cent picric acid in alcohol. Fig. 10—Abnormal Core of S.A.E. 3140 Steel (Core of Fig. 8); X-100, etched with 5 per cent picric acid in alcohol

(To be concluded)

The delivery of steel products from an Eastern mill to Milwaukee entirely by water is to be noted in the arrival of the steamer Grammer on Nov. 9 from Buffalo, with a cargo of rolled steel material from the Donner Steel Co., Inc., for distribution to customers in the Milwaukee territory, of which L. E. Meidinger is sales manager. The experiment is expected to result in a regular boat service to Milwaukee and Chicago.

Blast Furnace Problems Studied

Conference in Pittsburgh Takes Up Design Characteristics—Stove Capacity—Blowing Practice

AN all-day conference on blast furnaces, held under the auspices of the steel works section, Engineers' Society of Western Pennsylvania, at the William Penn Hotel, Pittsburgh, Nov. 12, attracted a distinguished group of blast furnace superintendents and engineers. The papers covered the subject so completely and profitably to those present that more meetings of the sort may be held. Light attendance at the monthly evening meetings of the section prompted the thought that more would come to an all-day conference; this conference to that extent was an experiment. It brought out an attendance of 100 or more from points in the eastern half of the country. The papers touched upon blast furnace design, blast furnace stoves, physical properties of raw materials and blowing practice. Discussion of the several presentations was free and open.

A paper by Arthur G. McKee, president Arthur G. McKee Co., Cleveland, on "Some Observations Regarding Blast Furnace Design," was illustrated by lantern slides and reviewed the history of blast furnaces, with special emphasis on changes in design; the tendency toward the wider hearth in the more modern furnaces, the drift toward larger and stronger furnaces; the passing of the excessive number of bosh plates; that cooling plates above the tuyeres were less in evidence now than in former years; the greater attention being paid to downcomers, especially with reference to the larger openings and the introduction of the larger bell as an aid toward larger production and a lowering of the flue dust losses.

Changes in Furnace Profile

In opening the discussion Walther Mathesius, Illinois Steel Co., South Chicago, reviewed the changes in the profile of the lower portions of the furnace and explained that the activity of his company under his direction in that way had been the result of a policy to spend money where it would do good. He thought changes would continue to be made in the upper portions of the stack, dictated by the desire to eliminate excessive flue dust losses caused by unavoidable segregation of material. An enlargement of the stock line would mean corresponding changes in the bosh and hearth to equalize resistance to rising gases.

Julian Kennedy emphasized in his remarks the necessity of attention to the stock line and the desirability of metal blocks which would stand the abrasive effects of the raw material. He also favored the wider hearth and a stack of good slope, with a ¾-in. flare to within 12 ft. of the tuyeres, referring to the performance of the Toledo furnace of this type, which last month averaged 712 tons daliy of foundry iron, on 1800 lb. of coke, blowing 49,000 cu. ft. per min. with a pressure of 14 to 16 lb. and a temperature of 1300 deg. Fahr.

Several speakers touched on the question of whether it was not more desirable to have a furnace-supported instead of a cantilever skip. A tendency away from the latter type was noted and a return to the older style of furnace-supported skip. This obviates the danger of the bell and hoppers getting out of center in the event of settling, since the skip would move with the stack in any settling.

Large Stove Capacity Recommended

A. E. Maccoun, superintendent of blast furnaces, Edgar Thomson works, Carnegie Steel Co., Braddock, Pa., spoke on the subject, "Modern Blast Furnace Stoves." He said that the modern blast furnace is expected to produce 700 tons of pig iron daily and that such an output calls for a furnace with a hearth of 21 ft., a bosh of 24 ft., capable of taking 55,000 to 65,000 cu. ft. of air per minute, with a temperature of 1400 deg. Fahr., and backed up with stoves having a capacity of 360,000 sq. ft. He said that clean gas is essential; advocated the two-pass side or central combustion stoves in preference to the three- or four-pass stoves, as simpler and of lower upkeep because of savings in brick; ground level valves; square checker openings, which eliminate special shapes of brick; the importance of central control and of more efficient burning of gas and the regulation of air and gas for improved combustion. He also urged larger mains as a means of cutting down line resistance.

There was lively discussion of this paper. It was urged by one speaker that increasing the stove areas to 360,000 sq. ft. is a big step, as it now is possible to get and maintain a temperature of 1100 to 1200 deg. Fahr. with stoves of heating areas of 175,000 to 180,000 sq. ft. and the temperature would be raised only 200 deg. by the suggested doubling the stove heating areas. It was suggested that, in addition to the central control, there is the hot blast regulator and there is a way out without increasing the size of the stoves, through greater conservation of the heat units in the raw materials. The gathering was somewhat divided on the idea of whether two- or three-stove furnaces was the best.

Varying Numbers of Stoves

There is some demand for a spare in the case of a shutdown for repairs or relining. It was agreed that the two-stove installation was all right in batteries of furnaces and five stoves might be set up for two furnaces, leaving one for a spare. Mr. Mathesius was strong in advocacy of the two-stove furnaces and said that in Europe such installations are no longer a theory, pointing out the European pursuit of the elusive calory, where coal has a price in relation to the common wage of 2 to 3 to 1, while in this country a ton of coal and the daily wage rate of common labor are about even.

Another speaker pointed out that the new furnaces now being built by the Riter-Conley Co. have varying numbers of stoves and dimensions and heating surfaces. The furnace of the St. Louis Coke & Iron Co., Granite City, Ill., has three stoves, 22 ft. x 100 ft., with a heating surface of 270,000 sq. ft., to serve a furnace with a rated capacity of 600 tons daily, which has a hearth of 18 ft. 6 in. and is 92 ft. high. New furnace of the Inland Steel Co., South Chicago, which will produce 800 tons of iron daily, is 92 ft. high and has a hearth of 21 ft., has four stoves 25 ft. x 105 ft., with a heating surface of 400,000 sq. ft. Furnace of the Central Furnace Co., Massillon, Ohio, is 18 ft. 6 in. hearth, 92 ft. high and has four stoves 23 ft. x 103 ft., with a heating surface of 360,000 sq. ft. At Johnstown, Pa., a furnace recently completed for the Bethlehem Steel Co. has five stoves 20 ft. x 100 ft., to serve a furnace capable of making 800 tons of iron daily, having a hearth of 21 ft. and a height of 95 ft. Furnace of the Hudson Valley Coke & Products Corporation, Troy, N. Y., has one stove 20 ft. x 90 ft. and three 22 ft. x 100 ft., with a combined heating surface of 260,000 sq. ft., the furnace being rated at 550 tons daily, with a hearth of 17 ft. and a height of 95 ft.

Sizing of Ore and Coke

T. L. Joseph, United States Bureau of Mines, Pittsburgh, read a paper, the joint work of himself, P. H. Royster and S. P. Kinney, also of the Pittsburgh station, which was illustrated by lantern slides, on "Effect of Physical Properties of Ore and Coke on the Capacity

of the Blast Furnace." This paper was based on experiments made at furnaces of small capacity, the largest being one of 300 tons daily capacity. In it the authors pointed out the desirability of uniformity in the size of the ore and coke, from the standpoint of efficiency, noting by graphs the greater length of time required to smelt large pieces of ore. Screening of coke was urged.

Discussion of the paper was somewhat unfavorable to the authors, as speakers said that the conclusions were predicated on types of furnaces not now generally employed. There also was some tendency to question the practicability of sizing coke, since it involved the building up of separate bins to hold the different sizes and this would be expensive and, even if tried, it would be necessary to use up all coke of one size before using another. Use of ore in briquets was not favored by some speakers, because of porosity and moisture problems.

Determining Actual Wind Volumes

The last paper of the conference was "A Method of Determining Comparable Blowing Practices for Iron Blast Furnaces," by J. S. Fulton, special representative Ingersoll-Rand Co., Pittsburgh. The paper was an enlargement of the idea that "the furnaces run on the amount of free air they actually receive, which has no relationship to the amount of wind reported." Mr. Fulton said, in part:

> It is unfortunate that the greatest amount of raw material entering the furnace should remain invisible. This invisibility is probably the direct cause of so little attention having been paid to the exact amount of air (wind or blast) entering the furnace. The weight of this wind is astonishingly large. A 600-ton furnace requiring 40,000 cu. ft. of free air per minute at 32 deg. Fahr. and 14 lb. absolute has delivered to it almost 2100 gross tons of air each 24 hr. This weight practically equals the weight of all the solid raw materials entering the furnace in the same length of time. The power required for compressing and delivering this amount of free air is large and will become larger as the demands for greater tonnages are met.
>
> Little knowledge exists of the actual volume of free air entering the furnace, this being primarily due to the impossibility of measuring pulsating flow. American furnaces are blown on the theory of constant wind, a perfectly sound theory, as a pound of dry carbon will require almost exactly the same amount of oxygen to give a chemical balance in the top gases, for all coke rates. But constant wind means constant revolutions per minute of the blowing tubs. Hence, a practice was built up around cubic feet of wind per pound of coke, with 50 to 55 cu. ft. of wind per pound of coke considered good practice. But there are too many variations in the plants in the methods of accounting for raw materials, as well as time on blast and production, to make this basis entirely accurate in establishing comparable blowing practice.

Methods of Determining Free Air

Careful analysis of the monthly report of a furnace will disclose the actual free air in the blast from the nitrogen in the top gas. This can be determined also by a carbon-oxygen check of the coke, ore and stone entering the furnace and the flue dust, slag, iron and top gas leaving the furnace. Either method will be as accurate as the chemical analysis of the top gas, since the oxygen in the blast combines with the carbon in the coke to produce the carbonized top gases. The cubic feet of free air in the blast per ton of iron will be almost in proportion to the pounds of carbon per ton of iron.

To make a fair comparison of different furnace performances, the following data are essential:

No. 1. Gross tons of iron produced per day, averaged at least once a month.

No. 2. Net pounds of dry carbon in coke actually entering the furnace.

No. 3. Cubic feet of wind reported per minute, blown at its intake temperature, humidity, barometer and blast pressure.

No. 4. Minutes actually on blast per day, after allowing for checks, casts and repairs, from which may be developed:

No. 5. Cubic feet of air at 32 deg. Fahr., 14.7 lb. absolute pressure and dry, required for the carbon in No. 2.

No. 6. When brought to the same temperature, humidity and barometer, item No. 5 divided by item No. 3 will show the percentage of the wind accounted for, or the plant volumetric efficiency.

No. 7. Adiabatic air horsepower hours for compressing and delivering wind, specified in item No. 3, may be developed.

No. 8. Adiabatic horsepower hours may be apportioned per gross ton of iron or per net ton of carbon.

British October Output Increased

LONDON, ENGLAND, Nov. 12 (*By Cable*).—The pig iron production in October was 473,700 gross tons compared with 448,700 tons in September and 444,500 tons in August. The October steel output was 647,100 tons, a slight increase over the 638,900 tons made in September.

Comparative production figures for the British steel industry in gross tons per month are as follows:

	Pig Iron	Steel Ingots and Castings
1913, per month	855,000	639,000
1920, per month	669,500	755,600
1921, per month	217,600	302,100
1922, per month	408,300	486,000
1923, per month	619,800	707,400
1924, per month	609,900	685,100
January, 1925	569,400	605,100
February	534,100	646,400
March	607,900	684,700
April	569,800	597,600
May	568,000	651,600
June	510,300	585,400
July	492,700	590,400
August	444,500	477,100
September	448,700	638,900
October	473,700	647,100

Marine Exposition in New York

Equipment and machinery for marine use were displayed in the 212th Anti-Aircraft Armory, New York, during the week Nov. 9 to 14. The show, under the auspices of the American Marine Association, included exhibits of many Government departments, as well as those of manufacturers and others. The ports of Baltimore and of Charleston featured their elements of accessibility to other parts of the world. The Navy Department had on exhibit one all-metal airplane designed for use as auxiliary to a submarine and a number of models of airplanes, as well as a model of the U.S.S. Constitution. One feature of the show was a display of boat models, made by boy scouts, for which prizes were given. Several types of oil burners were shown, as well as blowers and pumps, condensers, watertube boilers and electrical and other auxiliary machinery for use on ships.

Blaw-Knox Earnings Improve

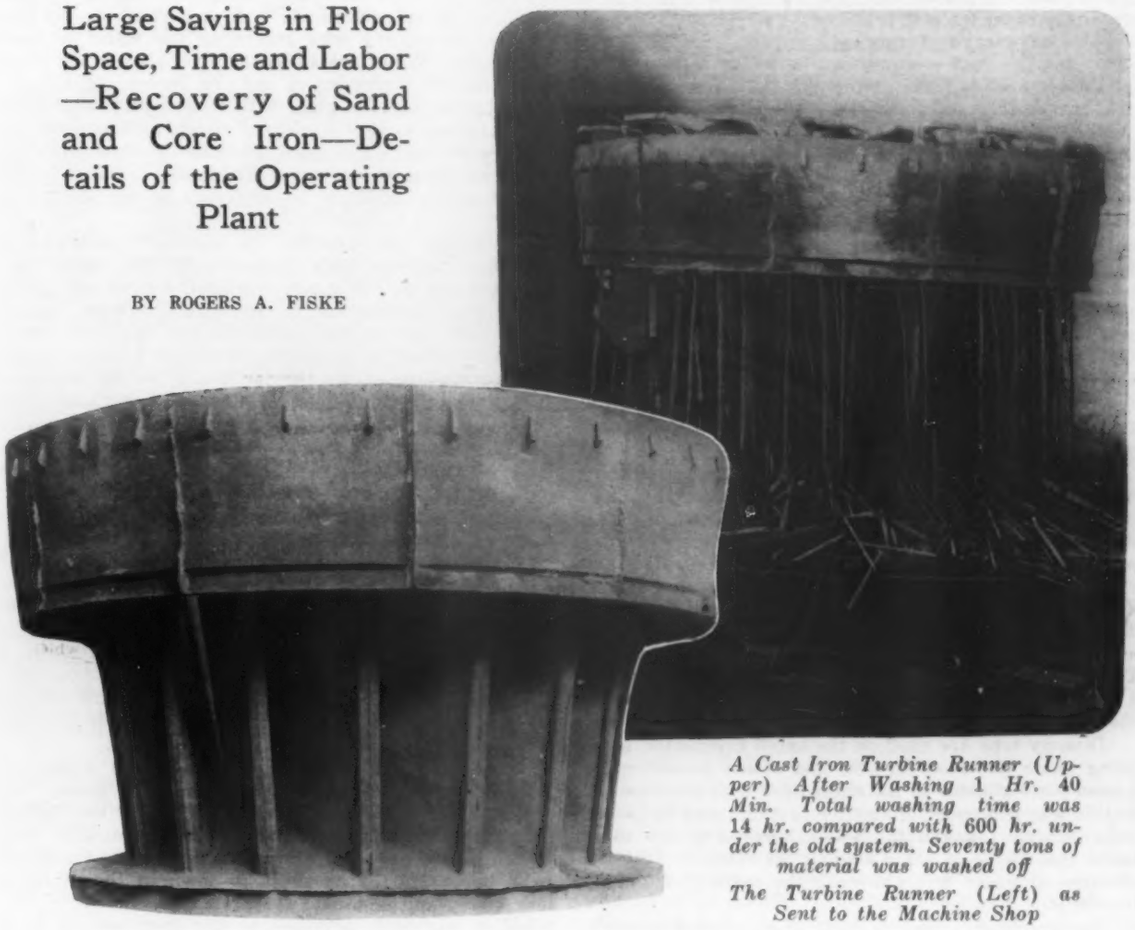
The Blaw-Knox Co., Pittsburgh, had net profits in the nine months ended Sept. 30, last, of $993,815, compared with $758,590 for all of 1924. As of Sept. 30, current assets of the company were $3,480,354, against current liabilities of $182,865, the balance sheet shows. The company has outstanding 9868 shares of 8 per cent cumulative preferred stock, and dividends at that rate for nine months called for the disbursement of $78,808. Deducting that sum from the net profits for the nine months leaves a balance fo $915,007, equal to $3.72 per share on the 248,705 outstanding shares of common stock. Surplus Sept. 30 stood at $1,322,324. The profit and loss account for the nine months ended Sept. 30 compares with that for the year ended Dec. 31, 1924, as follows:

	Nine Months Ended Sept. 30, 1925	Year Ended Dec. 31, 1924
Net sales	$5,735,869	$6,831,652
Expenses	3,492,009	4,449,039
Operating income	2,243,860	2,382,613
Other income	81,366	174,700
Total income	2,325,226	2,557,313
Sales and administrative expense	1,068,688	1,498,092
Depreciation	154,375	250,523
Federal taxes	138,945	98,440
Net income	963,218	710,248
Subsidiary company earnings	30,597	48,342
Total net profits	993,815	758,590

Hydraulic Washing of Castings

Large Saving in Floor Space, Time and Labor —Recovery of Sand and Core Iron—Details of the Operating Plant

BY ROGERS A. FISKE



A Cast Iron Turbine Runner (Upper) After Washing 1 Hr. 40 Min. Total washing time was 14 hr. compared with 600 hr. under the old system. Seventy tons of material was washed off

The Turbine Runner (Left) as Sent to the Machine Shop

FEW executives would deliberately close off one end of their foundry floor in order to gain floor space, and yet that is exactly what the Allis-Chalmers Mfg. Co., Milwaukee, did in its heavy casting foundry. It came about in this way. Production in the average foundry does not usually flow at a uniform rate. It often happens that valuable floor space must be used for the storage of partly finished work, either because of the temporary crowding of production or because some one process has become antiquated and occupies more floor space than it justly deserves.

Then again there are some phases of foundry work which are unpleasant and in which the labor turnover is normally high. This is true of cleaning large castings, which at this plant may weigh up to 200 tons each. Hand cleaning was laborious and slow. Work being cleaned and that waiting to be cleaned occupied much valuable floor space, and the employment department found that 20 days was a long time for a man to stay in the heavy casting cleaning department.

Mountains have been moved by hydraulic sluicing and valuable metals have been recovered by the same process. Why could not both advantages be adapted to foundry practice? This the Allis-Chalmers Mfg. Co. engineers set about to prove. Their opportunity came in 1923, at which time Milwaukee suffered from an acute labor shortage. The first experiment was carried out by erecting a motor-driven centrifugal pump in the shop, leading the water outside to a vertical nozzle and suspending the casting to be cleaned from the hook of a locomotive crane. The nozzle used was 1⅛ in. in diameter and the water pressure was 250 lb. and, although the casting spun around and was usually out of control of the operator, it was evident that the process had merits and experiments were carried further under a yard crane runway. There a 400-lb. pressure pump was installed and castings to be cleaned were brought out on flat cars equipped with a motor-driven turntable. A ravine, near at hand, was dammed, the reservoir formed being both the source of water supply and a catch basin for drainage water. The work performed was satisfactory, except that it was transported too far out of its natural channels and there could be little or no recovery of sand or core iron.

The expeditious washing of castings assured a saving in floor space and it was at once evident that space in the foundry necessary for a washing room would actually be less than that occupied by castings waiting to be cleaned and those which were being worked on by a crew of 60 men. Accordingly one end of the main bay was set aside for the washing room and today two men do all the washing and 12 men follow up with chipping hammers. In addition, the process recovers practically all of the core and surface sand and also saves $6,000 a month worth of core iron which is not damaged by the hydraulic process.

The permanent washing plant is a structure 34 ft. x 45 ft. in floor plan by 20 ft. high. Three walls are constructed of reinforced concrete and the end, facing the foundry, is enclosed by means of two hinged doors which are operated through a bell and crank motion by a 2-hp. electric motor. One door leads the other slightly, the lagging door being fitted with canvas belting to act as a gasket and make the doors watertight. It requires 40 sec. to open the doors.

The roof is made in three sections, one telescoping over the other and moving in a horizontal plane in the direction of the main crane bay. These roof sections are made of structural shapes and sheet metal and each is separately operated on tracks on the side walls, by a separate 2-hp. motor controlled by push buttons from

the operators' house. The roof sections are provided with limit switches to prevent over travel. Each section is equipped with screen-protected electric light reflectors and the uppermost section is fitted with three galvanized ventilators to remove steam and vapors from the room when it is closed.

The advantage of this construction is at once evident, for the roof sections can be rolled back and the end doors opened, thus giving the three overhead electric cranes free access to the entire floor space of the washing room.

The floor of this room slopes slightly and drains to one end of a 65,000-gal., reinforced concrete, L-shaped tank, which is below the foundry floor. Two false floors are provided around the turntables, the lower of which consists of steel pans which catch a large part of the sand and fine coke. The upper false floor is constructed of pans or trays, the bottoms of which are made of perforated plate so that they will hold only large coke and core iron. After a washing, the overhead crane lifts out these trays, dumping the iron to one side on the foundry floor where it is later re-handled by a magnet. The sand is unloaded on a tiled section of the foundry floor, drainage being led back into the underground tank.

The turntables already referred to are separately motor operated through two sets each of spur reduction gears. The larger table, which is 20 ft. in diameter, is driven by a 35-hp. Allis-Chalmers motor at a speed of 1¾ r.p.m. and is under the control of the operators by means of remote control push buttons. This table is capable of sustaining loads of 200 tons. The larger castings have sufficient weight so that they are not moved by the force of the impinging streams. The smaller table is 10 ft. in diameter and is driven by a 10-hp. motor at 3 r.p.m. and remotely controlled from the operators' house.

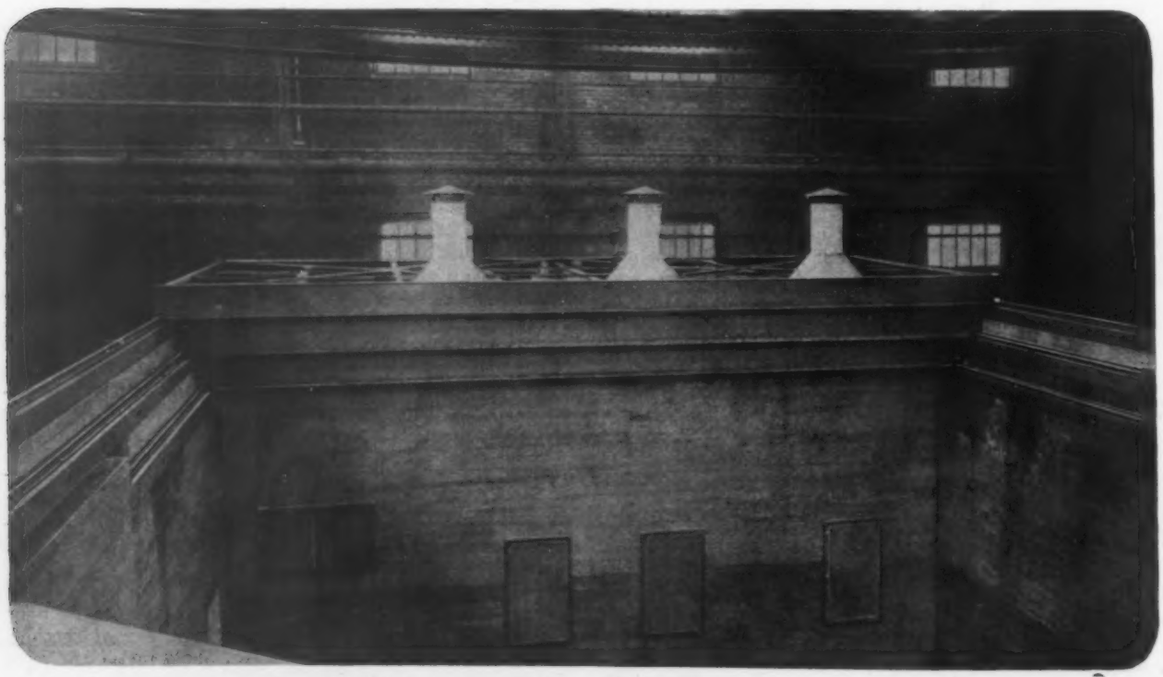
Dummy tops are used on the small turntables, some being made like steel baskets and others consisting of a steel plate studded at the outer edge with steel stakes. In this way a number of smaller castings may be placed on a dummy top and the whole lowered to the turntable, the stakes or sides holding the work so that the streams of water will not wash the castings from the turntable.

The operators' house is built of reinforced concrete and is located in one corner near the swinging doors. It is three stories high and is provided with a hydraulic elevator for the convenience of the operators. Waste water from the elevator plunger cylinder is used for makeup in the underground tank. A tier of screen-protected electric reflectors is arranged on each side of this house and these are so directed that the work on the turntables is well illuminated. Two nozzles are mounted through the inner wall at each operating floor and just above each nozzle is a wire-glass window protected by a heavy wire screen on the water or turntable side. A perforated water pipe, placed just above the glass and between it and the screen, enables the operator to flush the glass with fresh water, thus keeping it clean so that a clearer vision of the work can always be had. The glass in these windows must be replaced about once every four months, because of the sand-blasting effect it is subjected to by sand-laden water.

Hydraulic pressure for the nozzles is obtained by means of a 4-in. Allis-Chalmers, 6-stage, centrifugal pump, rated at 800 g.p.m., against a head of 900 ft. It is direct connected to an Allis-Chalmers wound-rotor induction motor, rated at 300 hp., 2200 volts, 3 phase, 60 cycles and 1800 r.p.m. synchronous speed. Drainage water enters the far end of the underground tank from the tiled foundry floor, the washing plant floor, and the exhaust of the elevator plunger cylinder. It passes alternately under and over seven, ⅝-in., boiler-plate baffles arranged in the end of the tank opposite from that at which the pump draws water.

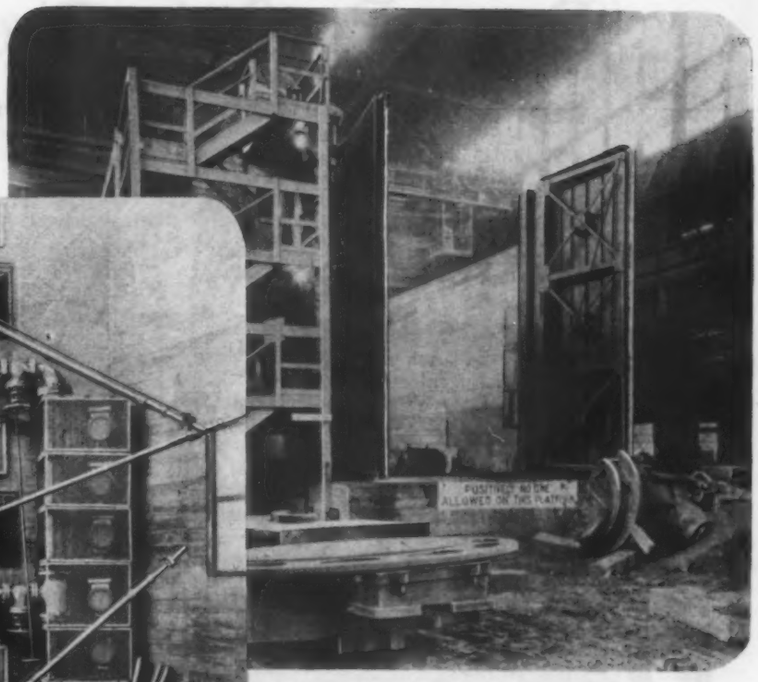
It is found that heavy sand settles in the first two baffle compartments from which it is taken by a bucket, suspended from the overhead crane, and is unloaded on the tiled portion of the foundry floor. It is allowed to drain for 24 hours and is then screened, passed over a magnetic pulley and delivered to storage bins for re-use. The fine silt which collects in the remaining baffle compartments is cleaned out every 30 days with the crane bucket. At present no use is made of this silt, although chemists believe that it will make a good paint pigment.

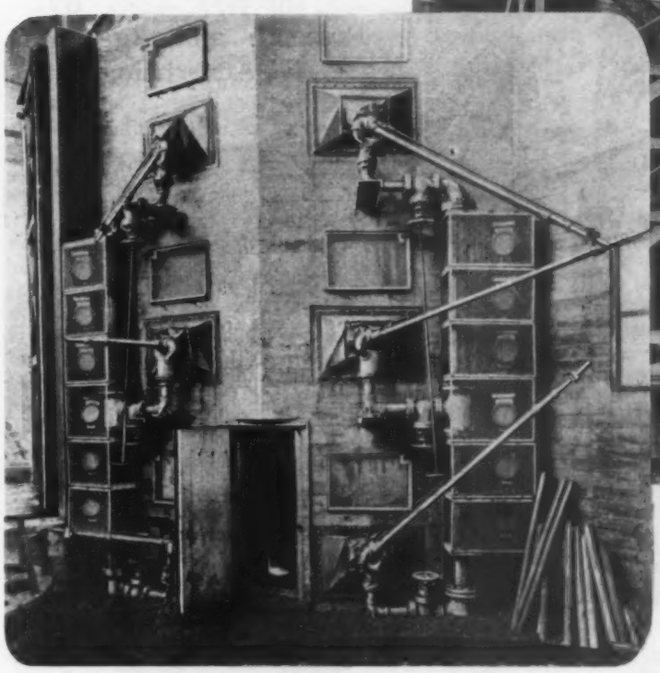
The hydraulic pump motor is remote controlled from push button stations in the operators' house. All remote control equipment was furnished by the Cutler-Hammer Mfg. Co., Milwaukee. An automatic float switch is also provided which either prevents the motor from being started or shuts it down in the event of low water in the tank. A further safeguard is provided in a switch, attached to the door leading from the first floor of the operators' house into the washing room, whereby the pump motor cannot be started unless this door is closed. If the door is opened when the motor is running it is immediately shut down. In



The Washing Room Roof Is Made in Three Sections. Each section moves under its own power and upon separate tracks placed on the side walls

The End Doors (Right) Are Motor-Operated and Are Packed With Canvas Belting to Prevent Water Leakage. The doorway is 14 ft. by 20 ft.





Six Nozzles (Left) Project From the Operator's Room. Wire-glass windows and electric reflectors are protected by wire screens. The pump cannot be operated when the door is open

addition, each stop push button is so designed that, by pressing the button in and giving it a quarter turn, the motor is stopped and cannot be restarted until that button is released. This gives the operator, working near any one of the six control stations, full power over the water supply situation in case of an accident or a misunderstanding.

The water is controlled by a starting and stopping pump. A feature of this installation is that no valves are provided between the pump and the nozzles, the only control being that of starting and stopping the pump. The reason for this is that if valves should be closed and the motor continued to operate, the work done in churning the water in the pump would cause excessive heating, which would result in damage to the unit. All water pipe fittings were made by Crane Co., Chicago, and are for 500-lb. hydraulic pressure.

The nozzles, which vary from ⅝ in. to 1 1/16 in., are made of bronze and are so designed with a split water way that the thrust otherwise present is eliminated. The nozzles are ball bearing in the horizontal plane and are counterweighted so that very little muscular effort is required to move them or to hold them at any angle. Only two nozzles are used at a time, usually one ⅝ in. and one 1 1/16 in., under which condition a pressure of 425 lb. is to be had at the nozzle throat. Immediately back of the nozzle tip are guide vanes which prevent the water from whirling and thus greater force is obtained when the stream strikes the sand core or casting.

A complete operation consists of opening the end doors and rolling back the roof. The crane then loads the turn tables and the operators merely press buttons to again close the doors and slide the roof panels back in place. The lower door in the operating room must be closed and then the pump can be started from remote control stations. One operator directs a stream of water on the work on each turntable and has under his control the rotation of the turntable on which he is working.

When washing is complete, the pump motor is stopped, the doors opened and grids or grate bars, if such were used, are removed by the crane after which the piece is taken to the chipping floor.

A natural question is—what is the effect of streams of cold water on hot castings? The experience at this plant is that castings such as gears and flywheels should be allowed to cool down to about 200 deg. Fahr. before washing. Less complicated castings may be washed at a higher temperature without detrimental effect. In fact, the general run of castings can go to the hydraulic cleaning process at very nearly the temperature at which a man with a chipping hammer would be able to work on them.

This foundry is particularly clean and free from dust at the cleaning end. This is largely due to the hydraulic washing of castings. The workmen enjoy using the new method for it is far less laborious than hand cleaning methods. Furthermore, it is much cleaner both as to the air which the men must breathe and also as to their persons.

Important steel plants both in Chicago and the East St. Louis region increased the number of their employees on a moderate scale during October, following the trend which was begun in the preceding month, according to a statement made by the Illinois department of labor. Although there are 13 per cent fewer employees engaged in the steel plants than were employed in the opening months of the year, the extent of operations is substantially ahead of last year at this time.

In the last fiscal year 173,261 tests were completed by the Bureau of Standards, Department of Commerce, according to a report to Secretary Hoover. The fee value of the work was $547,543.35. All income so received is turned back into the Treasury of the United States, the expenses incurred in the tests being absorbed by the annual Congressional appropriations for the Bureau's maintenance.

A heating and ventilating exposition will be held in the new Madison Square Garden, New York, Feb. 1 to 6, 1926. The National Exposition Co., Suite 334, McAlpin Hotel, New York, is managing it.

"Put a Profit in Every Bid"

Say Structural Fabricators in Convention

Approve New York One-Price Method and Lump Sum Estimates on Job

To Increase Sales By Research and Aggressive Advertising

ABOUT 200 structural steel fabricators met at White Sulphur Springs, W. Va., last week for their third annual convention. There they authorized an increase in assessments from 5c. to 25c. a ton on their output, vigorously recommended the New York one price policy and lump-sum estimates, agreed to support a campaign of national advertising to advance the interests of structural steel and developed a plan for solving technical problems through a carefully considered program of research.

"PUT a profit in every bid!" "Get a profit on every job!" These were the slogans at the third annual convention of the American Institute of Steel Construction. Those who came to the meeting lamenting the small or non-existent returns on a large investment, went away with renewed hopes that the remedy would be widely applied.

"Stop taking jobs under cost because you nope to make up the profit on something else later on. Figure a fair profit on every estimate you make—or else face a continuance of the present unfavorable situation."

Lee H. Miller, engineer of the institute, remarked in the course of his report that the industry was probably operating at about 75 per cent of capacity—and that profits have been less on this volume of business than they were when the industry was only operating at 50 per cent of capacity. This was his opinion after making an investigation among the members of the institute and it was amply corroborated by the pessimistic attitude regarding earnings among those at White Sulphur Springs.

"I have had an opportunity to discuss with men engaged in various other industries," said Mr. Miller, "conditions which indicate that similar losses are being met in other lines. For instance, the manufacturers of domestic tanks for heating water in residences claim that in spite of an increase of 50 per cent in the volume of business, there is a constant lowering of prices and a corresponding lack of profit. We are interested in determining the conditions that cause such results. The first and most convenient answer is that the industry has a capacity in excess of the normal demand. If this is true, the solution can only be met by a reduction of capacity or an increase in demand.*

"The increasing demand for fabricated structural steel in the past three years has not been accompanied by a corresponding increase in profits, which is puzzling in connection with the theory that we are having an over-production. Both rolling mills and fabricators have, perhaps as a matter of personal or company pride, felt justified in claiming capacity for production that only rare combinations could make possible.

"Among the many things that have happened since the transition from the iron age to the steel age has been the elimination of seasons and the peak conditions which in the past accompanied seasonal operations.

No More Seasonal Volume

"FIFTEEN years ago an automobile was only considered serviceable for summer conditions and was put into storage for the winter. Automobile sales for September of this year were the highest they have ever been in spite of the fact that the winter season is just ahead. It makes no difference today whether the contractor starts excavating for a new building in January or June; data exist to indicate that winter construction is, in fact, more economical than summer.

*A later speaker said that in his experience, capacity always kept far enough in advance of requirements so that any increase in markets merely meant a more general distribution of business instead of more efficient operation of existing plants.

This elimination of seasons in construction applies to residences as well as to large buildings.

"Fifteen years ago the architect prepared his plans with the idea of having his construction start in the early spring and the manufacturing plant expected to operate at certain seasons under a very small demand . . . at others under a very high demand. These conditions are past.

"The rolling mills in the past maintained certain equipment that could not be operated economically except under peak conditions—and it is a common theory of the fabricator today that he is justified in taking tonnage below his actual cost of production in order to hold together an organization that will enable him to offset these losses during a peak condition. Our seasons have been eliminated and these peak conditions will not come again so far as seasons are concerned.

"Another condition that has been revolutionized since the introduction of structural steel 35 years ago has been the elimination of the night (from a practical standpoint). Thirty-five years ago lighting conditions made night production very inefficient and expensive. Under present conditions, if the personnel of the day and night shifts are equal, there is little to distinguish between their efficiency. We have changed from an agricultural nation, which based its operations on seasons, to an industrial nation in which seasons have been eliminated.

"For this reason, it is important that as sellers we must understand that if profits are to be obtained we must include them in every operation and overlook the anticipation of peaks that will never come again as the result of seasons. It should be understood that there does and will continue to exist peak conditions developed over a period of years, but these are gradual in their attainment and are no longer accompanied by the seasonal peaks that have in the past augmented the period peak."

W. M. Wood, Mississippi Valley Steel Co., Decatur, Ill., and vice-president of the institute, emphatically recommended the "put-a-profit-in-every-bid" principle as did the majority of the convention in less formal manner.

C. Edwin Michael, president Virginia Bridge & Iron Co., Roanoke, Va., in his address of welcome suggested other means by which the current unsatisfactory conditions in the trade might be remedied. "In business practice we have tolerated most unreasonable attitudes, which no other industry would permit," he said.

Suggests Code of Ethics

"REFERENCE in here made to the code of ethical practice of a large association, in which is found the following clauses:

"Ethical conduct with respect to sub-contractor and those who supply materials requires that:

1. Proposals should not be invited from any one who is unqualified to perform the proposed work or to render the proper service, or to whom, in event that his proposal should be the lowest received, the contractor would be unwilling to award the contract.
2. The figures of one competitor shall not be made known to another before the award of the sub-contract, nor should they be used by the contractor to secure a lower proposal from another bidder.
3. The contract should preferably be awarded to the lowest bidder if he is qualified to perform the contract, but if the award is made to another bidder, it should be at the amount of the latter's bid.
4. In no case should the low bidder be led to believe that a lower bid than his has been received.

"The members of this institute and the public will very heartily welcome this pronouncement. They are both interested in seeing its terms rigidly and honestly practiced, because it will insure better construction, more uniform prices, better service and satisfaction to owner, contractor and fabricator. Every member of the institute should discourage unfair practice. It will eliminate much loss of time and money and the practice of many in submitting at first a higher price when they have reason to believe their figures will be made known to competitors. In good business practice, the last figures should be made first, and they should be reliably known to competitors when issued.

"There are usually standard prices based upon standard specifications, requirements and costs, in other branches of the building industry, and the same practice should prevail in the fabricating industry in so far as all fabricators are estimating and bidding upon the same specifications and requirements.

"In the principles of business conduct promulgated by the United States Chamber of Commerce is found, among others, the following clause:

> *Unfair competition, embracing all acts characterized by bad faith, deception, fraud, or oppression, including commercial bribery, is wasteful, despicable, and a public wrong. Business will rely for its success upon its own service.*

"The American Institute of Steel Construction subscribes to such principles as have been quoted, and there should be sufficient interest and good will for each other as to insure fair dealing in every business transaction, and the discussion at this convention should develop a firm sentiment to these ends.

Charge for Engineering Service

"FOR the sake of elimination of waste of effort and the consequent enormous expense to the industry, we should encourage the practice of having the engineer of the owner on important projects prepare the steel design. Otherwise he should select the engineers of some fabricator to do so and pay a reasonable price for such engineering service. There is no sensible reason why a dozen different fabricators should be asked to incur the expense of as many different de-

Some of the Accomplishments of the Third Annual Convention of the American Institute of Steel Construction

Authorized the directors to assess members up to 25c. per ton on tonnage produced instead of 5c. per ton previously paid.

Agreed to undertake a definite campaign of national advertising to further the interests of structural steel as against competitive materials.

Mapped out a program of market development which should directly affect the tonnage of each member in the years to come.

Supported the proposal for establishment of a standard sales manual to aid in eliminating confusing practices and misunderstandings.

Adopted a new constitution providing for more efficient organization of the institute to carry out the four-year program.

Urged the formation of local associations cooperating with the institute for the purpose of solving purely local problems, as has been done in New York.

signs in competition on the same project unless they are all remunerated for the expense incurred. Such duplication of expenditure of time and money could be employed in developing and promoting other uses for the product. There is an enormous waste here which must be eliminated."

One-Price Plan Described

ROBERT T. BROOKS, president George A. Just Co., Long Island City, N. Y., and a member of the board of directors of the New York Structural Steel Board of Trade, Inc., described the operation of that board as it affects the sale of structural steel in New York. Realizing the unfortunate situation into which the trade had fallen as a result of improper trade practices, the board was organized to bring the structural steel business up to a fair and honorable plane of conduct. Two things have been achieved: the custom of submitting a number of bids, each lower than the first (usually resulting in a loss for the firm securing the order) has been done away with to the benefit of both buyer and seller. Also, the custom of submitting bids on a price-per-ton basis before the exact details of the work are known, has also been eliminated. In a recent letter sent out by the American Institute of Steel Construction, it was stated that, "On fully 95 per cent of all contracts let, the lump sum bid would be acceptable to the engineers." It was suggested (at a meeting of engineers and fabricators) that there might be reasonable exceptions and some way will probably be found to permit of a per-ton price on such contracts.

The new method of submitting prices has only been in effect since Nov. 1 and there has hardly been time to ascertain the full results of the plan but according to Mr. Brooks, it has been very advantageous thus far. Several instances were given where money had been saved through the policies approved by the board as opposed to those cut-throat methods formerly in use.

But the real blame for present unsatisfactory conditions rests with those who have devoted all attention to manufacturing and erection problems to the exclusion of selling problems, said executive director Charles F. Abbott in his annual report to the convention. "There are many who feel that if the same attention had been given to expand the market as that devoted to improvements in production"; he said, "if distribution had been studied as manufacturing had been studied, our present plant capacities might have been fully employed in producing for new markets and new uses which would have logically followed.

Three Sales Methods

"THE industry has been trained and encouraged to think in terms of tonnage output, of rivets and stresses. The training required to emphasize importance of terms, prices and profits came from a different school, wherein men are taught the fundamentals of merchandising as related to industrial development, of competition from other industries and how to meet it, of selling and of advertising to develop a national consciousness of the product to be sold and to arouse a favorable public understanding and appreciation of the industry and the part it fulfills in contributing to the welfare of society.

"With an eye to the future the structural steel industry should be impressed with another responsibility which should be uppermost in the minds of all. According to the well-established principles of business, the function of a producer is confined to the manufacture of a product; his output is distributed through the jobber, retailer or direct to the ultimate consumer. His sales policy must define one of these three methods. If he selects the jobber, then he has the right to intensive representation and a continually increasing volume of business, sufficient to keep his plant fully occupied. The responsibility of the distributor is very great. His methods and effort to extend distribution and develop new uses are carefully scrutinized at all times.

"If the manufacturer fails to receive his quota through inefficiency on the part of the distributor, then he has the right to go after the business himself. Inefficient methods in the cycle of distribution cannot and should not interfere with the steady, economic movement of goods from producer to consumer.

"The fabricating industry is the distributing agent for the mills that produce the shapes. It is the connecting link between the producer and the consumer. Its responsibility is clearly defined.

"The producer has likewise a definite obligation to the distributor. His interest should never cease from the time the shapes leave the mills until they rest in the hands of the ultimate consumer and are placed in satisfactory service.

"The producer has an equal interest in improved business conditions and the application of the most efficient methods. He is likewise obligated to take

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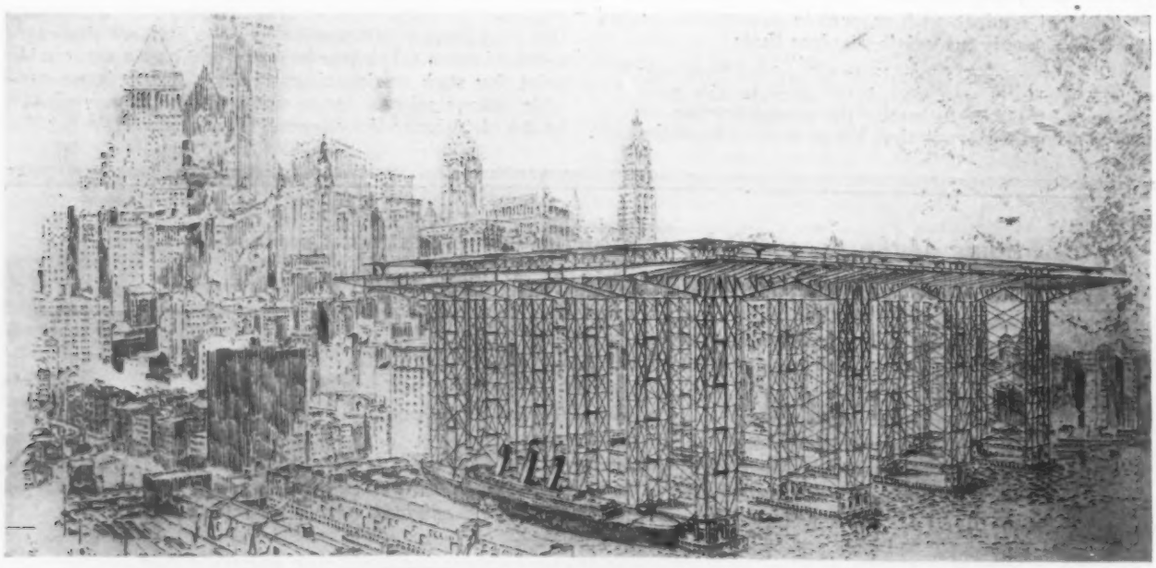


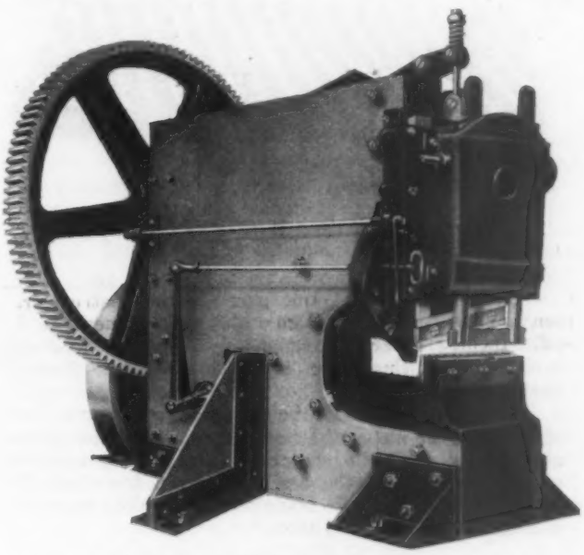
Harry B. Brainerd's Conception of the City of the Future—Airplane Landings Over Piers, Employing Structural Steel.—From the John Wanamaker exhibit

SHEARS HEAVY SCRAP

Machine Cuts Plate, Large Sections, Rail and Pipe—Diagonal Mounting of Knives a Feature

Scrap plate, flats, rounds, squares, angles, tees, beams, channels, riveted assemblies, rail and pipe may be rapidly and economically cut by the heavy-duty scrap and plate shear here illustrated, which is being marketed by Henry Pels & Co., Inc., 90 West Street, New York.

The machine, designated as the type SS, is claimed to permit handling material which cannot be cut economically on the usual shear of the alligator type, and to eliminate the necessity of wide use of the cutting torch for preparing heavy material. Five sizes are



Shear Adapted to Cutting of Wide Variety of Heavy Scrap. The knives are mounted diagonally to permit handling of very long material

available, the smallest and largest sizes being designed for continuous shearing pressures of 60 tons and 480 tons, respectively, the effective gap of the smallest being 20 in. and of the largest, 30 in.

The frame of the machine is of high-tensile steel plate, with a cast-steel distance piece between the plates on each side. The shearing slide is also of cast steel, and is balanced by means of a counterweight and heavy springs. It moves in long adjustable bronze lined guides. Automatic stopping of the sliding head has been provided for, a positive clutch being arranged to disengage automatically at the top of the stroke. A "locking" arrangement permits of continuous shearing if desired. Control handles are located conveniently on each side of the shearing slide. The machine is equipped with a heavy hold-down, which may be adjusted by means of a handwheel for material of various thickness. By removing a few bolts the hold-down may be removed conveniently to permit the shearing of bulky, bent or curved scrap. The two larger machines are equipped with an automatic hold-down operated from the flywheel shaft.

A feature is the mounting of the shear blades diagonally to the frame, which permits of shearing of very long bars and other material without loss. The upper and lower shear blades are interchangeable and reversible, which is stressed as minimizing the cost of renewal.

Gears are of steel, machine cut, and are adequately guarded. Pinions are of steel forgings cut from the solid and heat treated. All shafts are of steel forgings and run in phosphor bronze bushed bearings. The heavier shears are equipped with a safety shearing pin, the flywheel being connected to its shaft by a coupling plate, which, in case of overloads, automatically shears off the pin. In this manner the machine is thrown out of operation and injury to gears, shafts or other parts prevented.

The capacity of the smallest machine is for plates up to ¾ in. thick, flats 9 by ⅞ in.; rounds, 1¾ in., and squares, 1⅝ in., these being cut by means of the same blades and at one stroke. Angles and tees 6 by 6 by ⅝ in., beams 12 by 5 in. by 30 lb., channels 10 by 4 in. by 30 lb., pipe 4¾ in. in diameter and rails up to 24 lb. per yd. may be cut with several strokes by the smaller machine.

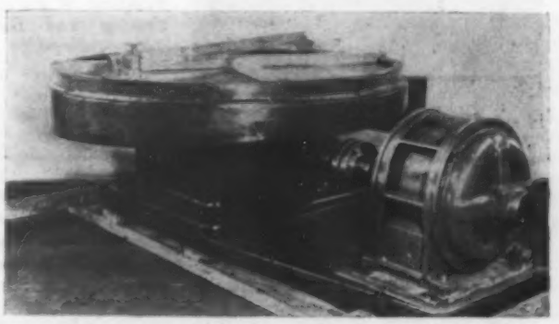
The largest machine will cut 2¼-in. plate, 20 by 2¾ in. flats, 5-in, rounds, and 4¼-in. squares, at one stroke and by means of the same blades. Pipe 16 in. in diameter, and angles, tees, beams, channels and rails up to the largest sections may be cut at several strokes, the same blades being used.

The power required for driving the smallest machine is 7½ hp. and for the largest 60 hp. The strokes per min. are 32 and 8, respectively. The length of the shear blades is 12 in., and 40 in., for the smallest and largest shears, and the maximum clearance between blades is 3 in. and 14¼ in. The height of the stroke is 2⅛ and 12 in. respectively. The flywheel of the smallest machine is 40 in. in diameter and of the largest shear 95 in. The approximate overall length, width and height of the two machines is 87 in. by 47 in. by 73 in. and 166 in. by 118 in. by 252 in. respectively, and the net weight, approximately, 6800 lb. and 97,000 lb.

Large Vertical-Spindle Disk Grinder

With a disk wheel 72 in. in diameter, the No. 79 vertical-spindle disk grinder recently added to the line of the Gardner Machine Co., Beloit, Wis., is said to carry the largest grinding member ever incorporated in a machine of this class. The machine was developed to handle numerous large flat-surface jobs which cannot be accommodated on the smaller grinders of this type and, although having some new features, it is, in effect, an enlargement of the company's 53 in. grinder.

The steel disk wheel is 1⅛ in. thick and is reinforced by a 40 in. steel plate 1 in. in thickness, which is intended to provide ample support extending well out toward the circumference of the large disk wheel. It is mounted on a heavy wheel collar or flange, 29½ in. in diameter, which is shrunk on the spindle, machined and balanced. The driving spindle is of large diameter and runs in two self-alining radial ball bearings. All down thrust is taken on a self-alining ball



The Disk Wheel Is 72 In. Diameter. An important feature is the special pneumatic press for mounting the abrasion disk

thrust bearing which contains 1 7/16 in. diameter steel balls, and is rated to carry a load of 10,400 lb.

Power is transmitted to the disk wheel by means of hardened steel bevel gears which are inclosed within the base of the machine, protected from dust and dirt, and amply lubricated. A dust channel is cast into the base of the machine, a series of ports, equally spaced around the outer circumference, and opening into this dust channel giving ample exhaust provision. A cast-iron guard ring is fastened to the top of the base, and any portion of this ring may be removed to permit the

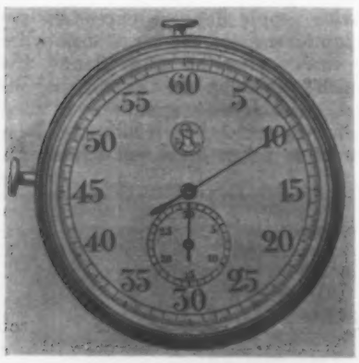
grinding of work carrying a lug projecting above the plane of the ground surface. Work holders of various types may be secured to this ring. The machine is available arranged for either belt or motor drive.

An outstanding feature is the special pneumatic press furnished with the machine. It is made of sheet steel pressed into oval shape on top. Across the bottom there is a thin sheet metal diaphragm with arc-welded, air-tight joint at the edges. After the steel wheel and the back of the abrasive disk have been coated with cement and placed together, the press is put on top of the whole and with numerous malleable iron clamps is clamped firmly to the outer edge of the disk wheel. Air is then pumped into the cone with the pump provided until the gage indicates pressure of 5 to 7 lb., this pressure being equivalent to 14 tons on the entire surface of the wheel. The machine weighs approximately 10,000 lb. crated for domestic shipment, and occupies an operating floor space of 12 by 12 ft.

Stop Watch for Laboratory Use

Unusual sturdiness and maintenance of accuracy are claimed for the stop watch illustrated which has been brought out by the O. Zernickow Co., 15 Park Row, New York. This instrument has a non-magnetic anchor movement, with nine jewels, and is intended for laboratory, testing, calibrating and other work for which such a watch is employed.

To assure positive functioning under severe service, the mechanism for winding, stopping and setting are separate units. The starting and stopping mechanism is actuated by the button at the top of the watch and is a patented feature claimed to permit of continuous stopping and starting without damage to the instrument. This button is first depressed until a slight resistance is felt, further slight pressure serving to start the watch. A second push on the button stops the watch, another push starting it again. There is a distinct click felt and heard in starting and stopping the watch. Zero setting is accomplished by means of the button at the left side of the watch. The hands do not fly back with a jerk, but are brought gradually to zero, which departure from the usual arrangement is stressed as eliminating breaking, bending or dislocating the hands. The winding stem is at the back of the watch, as is also the regulating device. The dial is graduated in 1/5 sec., and markings are black on silver dial. Dials graduated in 1/100 min., or in 1/5 sec. and 1/100 min., are available.

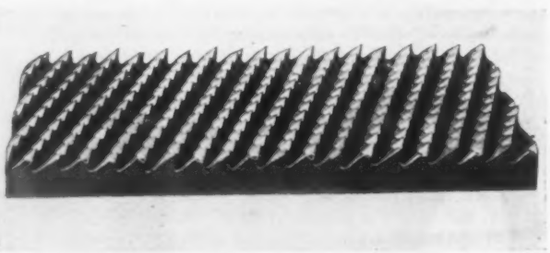


The Winding, Stopping and Zero Setting Mechanisms Are Separate Units, Which Assures Positive Functioning and Reduces Repairs

A similar stop watch with electric contacts for registering time intervals by switching on a recording magnet or for causing interruptions for actuating magnets or relays, has also been placed on the market by the company. This instrument is provided with three electric contacts which are set by means of a shifter at the back of the case. The standard types have contacts either of 10, 30 and 60 sec., ½, 1 and 2 min., 1, 3 and 6 min., or 5, 10 and 30 min. If the shifter is placed at 10, the watch will interrupt the current every 10 sec., and if placed at 30 or 60 sec., the interruptions will be accordingly. This type will operate on a minimum of 7 volts and maximum of 12 to 14 volts. The watch only interrupts the electric current, starting and stopping being accomplished by means of the button at the top of the watch.

Files with Self-Cleaning Feature

A double-cut file known as the Shearkleen, the teeth of which are made with a positive rake or undercut on the front, and a double slope on the back have been placed on the market by the Service Tool Corporation, Latrobe, Pa. The teeth are milled to shape from solid stock and their cutting edges are said to be sharp and clean, each tooth being an individual cutting tool properly spaced to avoid "tracking" and deep enough to prevent "clogging." The files are claimed to be self-cleaning on both hard and soft metals, wood and leather. The illustration herewith shows the form of the teeth.



The Teeth Are Provided With Positive Rake at the Front and Double Slope at the Back

The spaces between the teeth are deep and it is stated that the file can be restored to its original sharpness by the sand blast process, which can be repeated many times before the teeth are worn too short for effective use. The file is made of special alloy steel and is available in standard sizes.

Wrenches of Chrome-Molybdenum Steel

Drop forged wrenches made of chrome-molybdenum steel, and named Superrenches, have been added to the line of J. H. Williams & Co., Buffalo. The use of the chrome-molybdenum steel is stressed as permitting stronger tools of lighter weight and thinner section. The narrow pointed jaws adapt them to service in cramped quarters, and it is claimed that the wrenches of this material will strip the thread of any standard nut or break the bolt without spreading the jaws.

Four styles of this wrench, all heat treated, are available. These include the engineers pattern, double head, 15 deg. angle openings and a general-service "S" pattern with unusual leverage, both of which are furnished in nickel finish, with heads buffed bright. A construction pattern, single head, 15 deg. angle opening, and a structural pattern, single head, straight opening, offset handle, are the other styles at present available. The construction and structural patterns have a tong on the end of the handle for bringing bolt holes into line. They are specially treated to prevent corrosion.

The Chrome-Molybdenum Steel Provides Unusual Strength and Permits Lighter Weight and Thinner Section

HIGH-PRODUCTION DRILL

Full-Automatic Machine Claims to Reduce Labor and Drill Cost and Save Space

Savings in operator and drill cost, and minimum of floor space occupied are advantages claimed for the Caulkins full-automatic "super-sensitive" drilling machine being placed on the market by E. L. Krag & Co., 542 West Jackson Boulevard, Chicago.

The machine, illustrated herewith, is intended for high production drilling. In its present form it is designed to drill cotter pin holes in ⅜-in. bolts, but the machine can be adapted readily for the sensitive drilling of a variety of other parts, the quantity of which will warrant a special machine. Increase of production and lower costs are accomplished by making operation more continuous and reducing the attention required by the operator, permitting him to tend a large number of machines. Bolts to be drilled are dumped into the hopper at the rear of the machine, the operator having little to do except change the drills, which may be done quickly.

The spindle speed has been reduced approximately 25 per cent below the usual practice, which is stressed as avoiding wear and tear, frequent grindings and breakage of drills. Spindles have a travel of only slightly more than the diameter of the stock to be drilled, and a feed of about 0.004 in. per revolution. The feed drive is through a friction clutch, which, when the tension is properly adjusted, will drive a sharp drill through average stock without slipping, but will permit slipping if drill gets dull or strikes an unusually hard piece of stock. This feature is intended to minimize breakage of drills and the consequent loss of time in changing drills. A special arrangement and gage for setting drills is said to permit of removing a drill and replacing it with another in 30 sec. or less. It is claimed that from the time that one bolt is drilled until the drill is starting against another bolt, the spindle makes only six revolutions.

The machine can be built to handle bolts up to ½ in. in diameter, drilling one hole, and bolts having six holes in the head, which the machine will index and drill automatically. The machine can also be arranged for studs, pins, tubing, etc., drilling one or two holes; if the two holes are in line, they can be drilled simultaneously. Washers can be burred. The machine will drill, countersink, burr or index automatically.

Front and Rear View of Caulkins Full Automatic Sensitive Drilling Machine. One operator attends several machines

A ½-hp. motor mounted as shown is employed to drive the machine. Ball bearings are used throughout. The weight of the machine is 750 lb.

Electric Scraper Bucket Made by Hayward Company

The electric scraper bucket for foundry use, described in detail in THE IRON AGE of Nov. 12, page 1318, is a product of the Hayward Co., 50 Church Street, New York. The device is intended for use in foundries employing sand cutters for preparing their molding sand, a floor area of 5 ft. by 16 ft. being cleaned up in each cut, leaving the sand in piles approximately 4 ft. wide and 4 ft. high. The bucket makes one cut in approximately 20 sec. In addition to rapid operation, the labor saving is a feature.

Simplifies Line of Twist Drills

New high-speed twist drills, designated as the Hercules Nos. 555 and 444, taper and straight shank, respectively, are being announced by the Whitman & Barnes Mfg. Co., Akron, Ohio. These tools supersede the previous Hercules No. 550 and No. 500, taper shank and the following of the company's drills known as the Diamond; No. 402, taper shank; No. 402, Special, large shank; and No. 404, straight shank.

The new drills are processed and twisted hot, but the flutes are milled, which is stressed as combining accuracy with strength. The original Hercules No. 550 was made with a hub at the large end of the shank, this being done to provide additional strength to the oversize shank to better permit driving a powerful tool, but for certain jig work and in multiple spindle presses, this hub was sometimes found objectionable. A new process for making shanks is said to permit of eliminating the hub, the new tool, No. 555, being adaptable wherever a standard size drill may be used. A No. 555-H taper-shank and a No. 444-H straight-shank oil hole drills are also new tools offered. Overall and flute length dimensions correspond size for size throughout the carbon and high-speed lines.

May Build Machinery Mart in Chicago

A movement is under way in Chicago to build a machinery mart, bounded by Jackson Boulevard and Clinton and Canal Streets. The building will be 21 stories and will contain 800,000 sq. ft. of rentable space. Graham, Anderson, Probst & White are architects. One important machine tool dealer is of the opinion that the trade has been gradually moving toward this centralization for some time. In other quarters it is felt that dealers and manufacturers will establish warehouses for stock and keep only a few machine tools on display at the proposed mart.

Performance Record of a Milling Saw

A Disston 21-in. interlocking milling saw, which was in operation for 155 working days without removal for sharpening or repairs in the establishment of Horace T. Potts & Co., dealers in iron and steel, Philadelphia, cut in that period 1285 pieces of steel ranging in diameter from 3 in. to 7½ in. of various grades, including cold rolled steel, soft or machinery steel and other steels up to 0.40 and 0.50 per cent carbon.

Joseph T. Ryerson & Son, Inc., Chicago, has acquired the full right to manufacture and sell the line of horizontal drilling and boring machines formerly made and distributed by the Harnischfeger Corporation, Milwaukee.

Price Firmness Causing More Forward Buying; Further Gains Possible

Iron and Steel Improvement Only Forerunner of Better Conditions Anticipated for 1926

BY DR. LEWIS H. HANEY
DIRECTOR NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

THE real upswing in the iron and steel industry is under way. So considerable is the progress indicated and so favorable are most of the reliable barometers, that this upswing, allowing for seasonal variations, should continue well into 1926.

It is not improbable that building activity will show a generally declining trend during most of next year, but it is quite possible that improvement in other steel consuming industries will offset such a decline. Just as the phenomenal volume of building operations has offset the decline in equipment and petroleum demands for steel this year, so improvement in the demand from railroads is likely to counterbalance the probable decline in building operations next year.

Already there are signs of a greater demand for steel on the part of the railroads. October orders for locomotives and cars were the largest in many months and the unfilled orders of three locomotive manufacturers in October not only showed a large gain, after making due allowance for seasonal variation, but were considerably in excess of the quantity on the books in the same month last year for the first time since January.

The prevalence of hand-to-mouth buying in the past is now tending to cause more insistent buying and the accumulation of unfilled orders. As buyers have been receiving prompt delivery and ordering only for immediate requirements, they have had small stocks. Now that the mills are beginning to be booked ahead and are able to take a firmer stand on prices, there has developed somewhat of a rush on the part of buyers to cover their requirements and premiums on early deliveries are talked of. This situation is notable in the case of automobile sheets. The sharp gain in the unfilled orders of the Steel Corporation is a sign of the times.

Average of Steel Prices Up

THE situation in the steel industry is well illustrated in Fig. 1. This chart shows that:

(1) The production of steel ingots, after eliminating the merely seasonal changes, shows little, if any, change in trend during the last two months. In October, ingot production gained nearly 11½ per cent, but this is only a little larger than usual for the month and the September gain was less than usual. The net result is that, when allowance is made for normal growth in steel requirements and for the usual monthly ups and downs, the October ingot output really stands as a point slightly lower than in August.

(2) The unfilled orders of the Steel Corporation showed a very sharp gain and at the end of October were far greater than at the same date a year ago.

(3) The trend of THE IRON AGE index of finished steel prices shows a slight but distinct reversal in October. It is now upward for the first time since January. The October average was 2.405 cents against 2.397 cents in September.

The conclusion seems warranted that unfilled orders will show further gains. They are still relatively small and in fact are not much above the low point reached in February, 1922, which was the bottom reached after the 1921 depression. *There is thus considerable room for expansion before anything approaching abnormality could appear.*

As to production, it is doubtful whether the steel ingot output will expand very rapidly in the near future. The output is already about 8 per cent above our

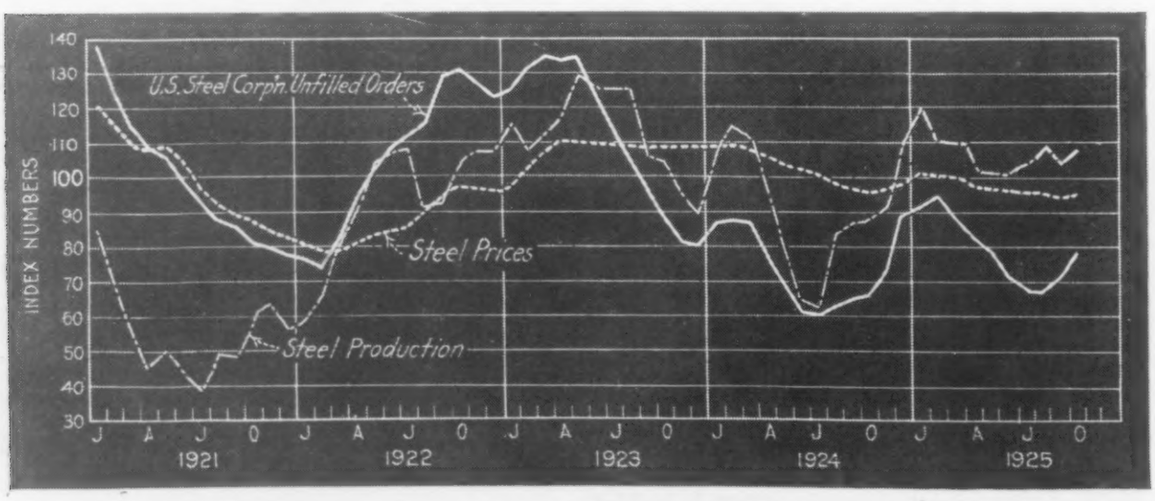


Fig. 1—The Unfilled Tonnage Curve Continues to Rise, Steel Prices Have Finally Advanced Sufficiently to Establish the Upward Trend and Production Has Increased Also

In This Issue

Still plenty of room for iron and steel trade improvement.—Nothing abnormal in present volume; price firmness means more forward buying; Dr. Haney sees even better business in 1926.—Page 1392.

Increased industrial efficiency partly responsible for larger steel consumption.—And present quiet absorption of sizable tonnage infers increase next year.—Page 1396.

More finished steel likely to be imported into Southwest in 1926.—Shipments of bars, shapes and cotton ties aided by low freight in returning cotton boats; plan warehouse in Texas for foreign steel.—Page 1371.

Rates on cast iron pipe radically changed.—Freight on pipe and fittings from Eastern foundries lowered; tariff from Birmingham district increased.—Page 1400.

Structural fabricators approve New York one-price plan.—Make one bid on every contract and put a profit in every bid, keynotes of convention.—Page 1386.

Vote increased assessment for advertising structural steel.—Fabricators plan national campaign to build sales for future; new uses suggested.—Page 1387.

Two men take place of 60 *in cleaning room of Milwaukee foundry.*—And hydraulic cleaning method saves monthly $6,000 worth of core iron formerly lost.—Page 1383.

Scrap in blast furnace charges causes foundry trouble.—Says Dr. Moldenke. Claims result is desulphurized but not deoxidized cupola pig metal; foundryman could charge scrap in his own cupola if he wished to cut costs that way.—Page 1399.

New billet scraping device increases yield of bars and sheets.—Gains of from 1.50 to 1.89 per cent obtained by cleaning metal by drawing through vertical and horizontal knives.—Page 1375.

Micrographs distinguish normal from abnormal steel in automotive plant.—If excess cementite exists as sharply defined network, the steel is normal.—Page 1378.

Suggests two-pass side or central combustion stoves as most efficient for modern blast furnace.—Also recommends ground-level valves, square checker openings, larger mains and better air and gas regulation.—Page 1381.

Will investigate blast furnace and steel foundry capacities.—American Iron and Steel Institute committee will study new questions in addition to ingot capacity on practical rather than theoretical basis.—Page 1398.

World's visible supply of tin only 15,770 *tons on Oct.* 31.—Smallest this year; consumption running ahead of Straits production.—Page 1397.

Says salvage value of steel-frame building should be considered as favorable factor.—Difference in insurance rates between steel-frame and reinforced concrete also enters buying equation.—Page 1424.

Blast furnaces operate on amount of free air they receive.—Which has no relationship to amount of wind reported, says J. S. Fulton; how free air can be determined.—Page 1382.

No longer profitable to take orders below cost in structural steel trade.—Elimination of building seasons makes old peak-profit system unwise.—Page 1386.

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Being Sure of the Facts

THAT foreign steel was inundating the Southwest has been frequently reported since early 1925. To be sure of the facts, a member of THE IRON AGE staff made a special trip to Texas, and his story will be found in this issue. It is based on first-hand information, not hearsay.

Again—we quote from the letter of a large steel producer in the Central West: *"Permit us to thank you for the question.* (Another case of checking up on Dame Rumor.) *It proves once more that* THE IRON AGE *prefers accuracy to supposition."*

It is an unwritten and long-established policy, this being sure of the facts. The effort to be accurate is behind virtually every line of type in THE IRON AGE.

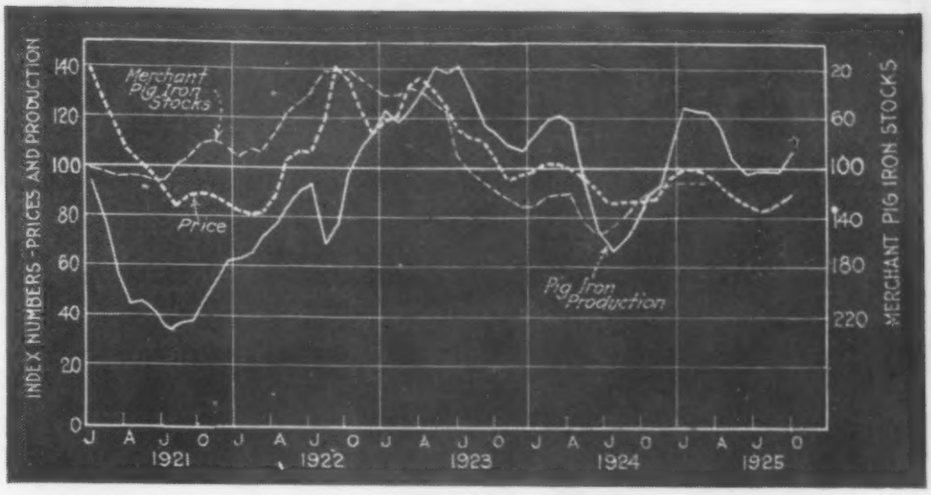

Fig. 2—Pig Iron Production Is Now Above the Line of Estimated Normal Requirements; the Price Trend Is Steadily Upward

estimated normal and is large enough in comparison with unfilled orders. October, moreover, is usually the peak of the year.

If production is held down to a reasonable level the price of finished steel will continue to firm up and gradually advance. At present this seems to be probable. It will be noted that the October average price of finished steel is still lower than the average for October, 1924.

Pig Iron Output Above Normal

THE outstanding fact in the pig iron situation is that production in October rose decidedly above the line of normal trend for the first time in four or five months. After making due allowance for the normal growth of the country's requirements and for the usual seasonal changes, our index of pig iron output in October stood at 106.7—almost 7 per cent above normal.

Stocks of merchant pig iron are estimated to have reached on Sept. 1 the lowest point since the middle of 1923. Reports indicate that in general stocks of pig iron on furnace yards have been reduced greatly.

THE IRON AGE composite price of pig iron continued its upward trend in October, the average for the month being $19.92, against $19.38 in September. At the end of the month the average was $20.38 and was still rising.

Three factors are immediately affecting the price of pig iron. (1) The advance in coke prices, (2) the rate of pig iron production in comparison with the steel output, and (3) the importation of foreign iron.

The sharp advance in coke prices last month had much to do with the upward trend of pig iron, and accordingly the more recent decline in coke will temporarily at least tend to check the advance in iron. High coke prices have also kept down the production of iron, causing producers to postpone putting on additional furnaces and even to take off furnaces in order to sell coke at a level which shows greater profits than iron. To the extent that this has been a factor, the easier trend in coke will have a reverse effect. Moreover, in spite of the effect of coke prices on production, the output of pig iron has been going ahead rather fast and is *tending* to gain on the steel output. This is a condition which usually checks iron prices. On the whole, therefore, while further advances in pig iron will undoubtedly occur, some pause in the upward movement is to be expected in the near future.

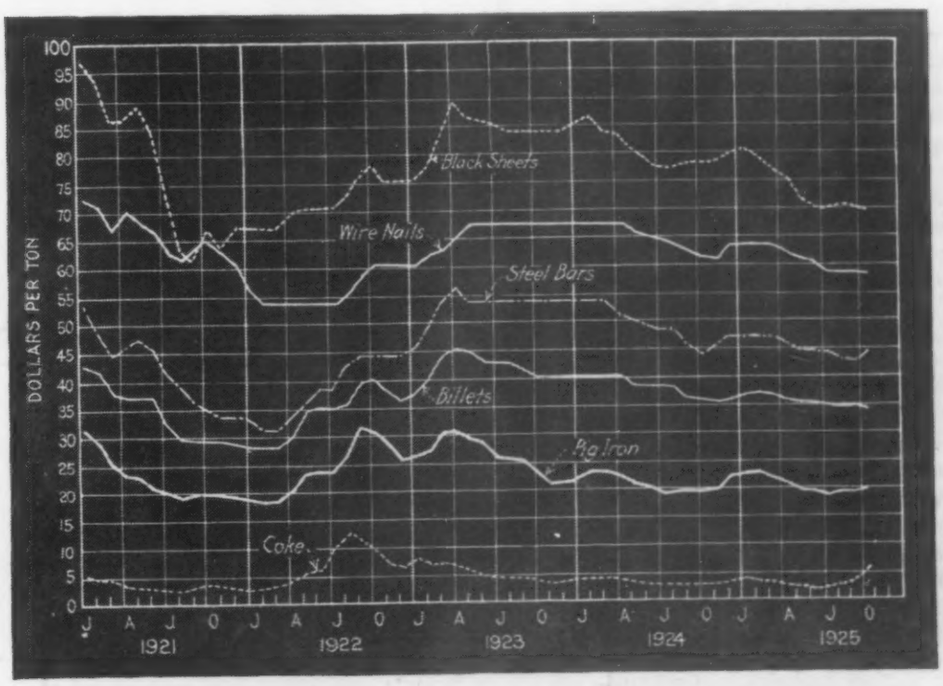

Fig. 3—The Advancing Coke Market Has Narrowed the Margin Between That Raw Material and Finished Pig Iron; Bar Prices Have Increased a Little More Than Pig Iron

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Efficiency and Large Tonnage

AGAIN approaches the holiday season, which for the past three or four years has been marked by a flood of predictions of very active business in the new year. We shall have such predictions again, and already there are notes of warning against too much reliance upon them.

One of the lines these warnings take deserves analysis. It is urged that we have had very active business of late, considering 1925 by itself, or the past three years as a period, hence very favorable conditions must be requisite for recent records to be improved upon. The argument as presented seems rational, but it omits consideration of one very important factor—efficiency.

Statistics of production, movement, consumption and prices are of great value, and indeed have become indispensable, but it is best not to place entire reliance upon this single class of information. One observes that the production of a given commodity has increased by so much in a certain time, and concludes that the increase is too large, hence that there must be a reaction. Efficiency in the application or utilization of the commodity may be so much greater that lessened effort involved per unit fully accounts for the large increase observed.

After all, we are dealing in industry not with quantities of material or amounts of money, but with human effort. We have a given population, a given percentage of the population gainfully occupied, and a certain amount of effort expended by those so occupied. The term "gainfully occupied," adopted by the Bureau of the Census, is apt and safe. It connotes merely that the person is receiving, avoiding the point whether what is "gained" is "earned" by a *quid pro quo*. More is "earned" now than in 1920.

Since the slacker times of that year and the confusion of the 1921 readjustment and reorganization, there has been a great increase in efficiency in nearly all industrial operations. In the production and consumption of steel every one recognizes that this large increase has occurred, but a slip may be made in failing to link up this great fact with the tonnage and other quantitative statistics we are in the habit of studying.

The force of this argument may be brought out by reference to mental attitudes that have prevailed at times in the past three years. In the spring of 1923, when the rate of steel ingot production had increased for eight successive months, and by a total of 63 per cent, it was remarked in some quarters that the observable industrial activity of the country did not seem to warrant any such tonnage. There was not enough excitement, not enough noise, judging from previous experiences, to indicate that the country was really working hard enough to warrant such tonnages. Yet the outcome proved otherwise. The year's steel production was second best only to that of one year, a war year, and missed making a new record by less than one-third of 1 per cent.

In the spring of 1924 there was a real slump in production of steel and again it looked as if quite too much had been attempted; but after July there was a substantial recovery. This year has seen something of the same order. In each of the three cases the consumption of steel has proved larger than would be expected from the amount of effort observable. The factor that has made this divergence is the increase in efficiency.

There may be the attitude that the largeness of this year's steel tonnage makes it difficult for 1926 to do better. Why not the attitude that the quietness, smoothness and ease observable this year in the absorption of so large a tonnage represents preparation for still larger tonnages in future?

Foreign Steel at Gulf Ports

AN editorial representative of THE IRON AGE found, on a visit to Texas, that imports of steel into the Southwest are much larger in the common thinking than in actual figures or in percentage of the steel consumption of that territory. Predictions made in some quarters that 1925 would see large importations of foreign steel have not been borne out. The factor that has troubled domestic mills is that extremely high railroad freight rates into the Southwest make the cost of steel delivered at Houston, Dallas and other points so high that foreign steel can come in at prices much below those on American steel. When one jobber or fabricator buys foreign steel

and sells it at low prices, other jobbers and fabricators are forced to do likewise, and as a result the American mills are not engaging in aggressive price competition on such products as bars and shapes. Where the tariff is high, as on plates, only negligible amounts of foreign steel are received, but the duty is low on bars, shapes and cotton ties and these products lead in the imports. However, American makers of cotton ties this year not only met the foreign price but went lower and preserved a good deal of that business.

With the exception of a protest from a Texas rolling mill, there has been no effort on the part of American mills either to have duties increased or rail rates to Southwestern territory lowered. Thus the inference is that they prefer to lose some business rather than to ask for special favors. Profitable freight rates have, of course, contributed to the prosperity the railroads are now enjoying, with its resultant buying power, and from this condition the mills have derived much more business than the total tonnage they have lost through the importations at all American ports.

The Steel Institute's Notable Record

FOREIGN metallurgists who attended the October meeting of the American Iron and Steel Institute in New York stressed two things in their comments: First, the high quality of the papers to which they listened; second, their surprise at the extent of the development of research work in this country, as evidenced at the meeting. Such testimony raises the question whether there is a like appreciation at home of the exceptional programs provided for these technical sessions.

That they are a highly important addition to the literature of American iron and steel works practice is doubtless the judgment of the average member. To those at all familiar with the proceedings of technical societies at home and abroad that would be scarcely a half statement of the fact. It is simple truth to say that the last ten volumes of the Year Book of the American Iron and Steel Institute represent a larger contribution to the metallurgy of iron and steel and to the world's knowledge of iron and steel works operations at their best than the proceedings of all other organizations at home or abroad for the entire decade.

The symposium on "The Modern By-Product Coke Oven," which featured the May meeting of 1913, was an authoritative volume in itself. In the years immediately following came a monumental series of papers on the latter-day advance in blast furnace practice and on open-hearth furnace construction and operation. Blast furnace gas engines, the electric furnace, rolling mill practice, heat treatment of steel, alloy steels, iron ore and fuel supply and fuel economies—the whole range of problems of the making of iron and steel and their application to engineering uses has been covered. At last month's meeting a group of four papers by leaders in the wrought iron field was a highly successful feature, attracting the largest attendance in several years.

It need not be inferred that the secretaries of the engineering societies have not made every effort to get such papers as have given the meetings of the institute their distinction. But the societies do not have on their program committees the heads of the world's largest steel companies. The American Iron and Steel Institute is most fortunate in the cooperation of the Steel Corporation and various independent companies in the literary contributions of their talented young operating men.

Now and then comment is passed on the fact that the majority of attendants at the Commodore Hotel meetings in New York prefer the social concourse to the technical sessions. That is because many of the twelve hundred who go are sellers of pig iron or steel and have journeyed to New York to brush elbows with like-minded men in the trade while they learn the drift of the market. That is one of the high attractions of these meetings, the institute being unique in combining in its membership the highest talent—in administration, finance, works operation, selling and research—in the greatest manufacturing industry in the world's leading nation.

How the functions of the semi-annual meetings can be best fulfilled, in view of these diversities of talent and interest, is a problem on which the last word has not been said. But even with the defection of the commercial men it must be said that the institute's technical sessions suffer in no degree by comparison of their attendance with that of any of the national engineering societies.

Some future meeting may revert to such a commercial program as that back in 1912, when well-known leaders in the industry debated "Contract Obligations," "Competition—Its Uses and Abuses," "Technical Training of Salesmen" and "The Buyer from the Manufacturer's Standpoint." Also, for the sake of variety, an excursion might be made into the field of practical economics, in which not a few members have given proof of their talent as they have appeared before various committees at the National Capital.

—But that is digression. Coming back to the thought of the foreign visitors at the October meeting in New York, the American Iron and Steel Institute is to be congratulated not only on the young men who have so notably contributed to its literature, but also on the high promise thus given for the future development of the industry.

The Ascension in Tin

WHILE tin consumption in the United States, the chief consumer, is on a very large scale, production of Straits tin, the chief source of supply, is proceeding at a slower pace. At the end of October the total of 1925 deliveries of the metal to American consumers had been 64,625 gross tons, over 10,000 tons more than for the same ten months last year and 500 tons larger than the total deliveries for all of 1924. Production, as measured by shipments of Straits tin, for the first ten months of this year was only about 3600 tons greater than for the same period last year. As a result of the steady outrunning of production by consumption the world's visible supply had declined by Oct. 31 to 15,770 tons, the smallest amount reported this year and more than 7000 tons less than on Jan. 1.

The present price of Straits tin at 64 cents per

pound, New York, is about 27 per cent higher than the 1924 average and nearly 50 per cent above the 1913 average. Neither speculation nor concerted restriction of production is asserted as a cause of the advance, but naturally consumers are keenly interested in the future course of the production curve in view of well-sustained consumption. Whether higher sheet steel and the dearness of tin will mean higher tin plate prices for next year remains to be seen. Tin is now an expensive metal, and already some large interests are seriously seeking substitutes for tin plate for containers.

Our Steel and Pig Iron Capacity

IT IS well that the directors of the American Iron and Steel Institute have decided to enlarge the duties of the committee recently appointed to survey the steel ingot capacity of the United States and report whether the present rating should be lowered. Like doubt exists as to the effective iron blast furnace capacity of the country and as to the capacity for the production of steel castings, and the committee is now charged with an inquiry into each of these lines. The last annual report of the institute showed that on the basis of estimates by producing companies the totals as of Dec. 31, 1924, were 58,438,420 gross tons a year of steel ingots, 2,698,385 tons of steel castings and 53,434,695 tons of pig iron. Questionnaires have been sent out, showing the bases for ratings adopted by the committee, and paving the way for eliminating from the lists of potential producers such plant as has long been idle or is counted obsolete.

The ultimate result of the canvass is expected to be the setting up of figures which will be considerably nearer than those quoted above, to the country's peak-year records, respectively, in steel ingots, steel castings and pig iron. They will be nearer also to the figures representing practical, rather than theoretical, capacity which THE IRON AGE has used as the basis of its estimates of the operating rate of the industry from month to month—namely, 54,000,000 tons a year for ingots, and 49,000,000 tons a year for pig iron.

A point that may well be made in connection with all the smelting and metal refining operations of the country is that the producing capacity of any industry is seldom a definite thing. In the case of such a product as aluminum, with a single producer and a specific development of power as the controlling factor, we can get close to real capacity. Nevertheless, even such an industry as electrolytic copper refining, in which all the plants are up to date, possesses a certain elasticity, each of its plants being capable of considerable straining or slackening above or below its normal. Moreover, there are many industrial plants that can be forced at a rate for a brief period that cannot be maintained for a year.

However, the greatest uncertainty in respect to estimates of national industrial capacity pertains to its quality. Almost every industry comprises plants ranging from those of the first class down to the obsolescent. The industrial surveyor finds it difficult to draw dividing lines. In hard times only the first class plants can operate. In fatter times those of the second, and perhaps the third, class may come in. During the great war plants were recalled into use that had disappeared from the lists many years previously; figuratively speaking, some were reclaimed from the scrap heap.

The war brought into employment about all of our producing capacity and developed many maxima of production. Some industries, as automobile manufacturing and petroleum refining, have gone further since then, but many are still below their peaks of 1918-20, and many have had a great deal of plant to be discarded and written off, a process that has not yet been completed. Generally speaking, an estimate of industrial capacity is necessarily more or less arbitrary; and also, generally speaking, it is bound to be affected by economic and specifically by market conditions. Every industry ought to have an annual survey of its producing capacity; and industrial activity might best be gaged by comparing the current rate of production with the total of first-class capacity. If, then, there were occasionally quotients of the order of 110 per cent the meaning would be clear.

DEMAND for steel rails in non-producing countries, as judged by the combined exports of the United States, Great Britain and Germany, is much less now than in 1913, and Germany's proportion of the total is notably larger. To Sept. 1 of this year the combined exports of the three countries were about 69,800 tons per month. For all of 1913 the corresponding total was 121,600 tons per month. World demand this year, therefore, has been only about 56 per cent of the pre-war volume. In 1913 Germany's proportion of the total rail exports was 34 per cent; to Sept. 1 this year it was about 52 per cent, with the German total only about 5000 tons per month less than in 1913. The United States and Great Britain are now doing only 40 per cent of their pre-war business. Competition has been keen, and there have been some lively exchanges on the relative merits of basic Bessemer and basic open-hearth rails. The German argument of the lowest price has been more effective than any metallurgical consideration, with the result that German rails have gone this year to more than 20 consuming countries.

Favor Lake Erie-Ohio River Canal

The attention being paid to water transportation was well illustrated by a meeting at Youngstown, Ohio, Nov. 7, of representatives of manufacturing and industrial companies in a hearing conducted on the proposed Lake Erie-Ohio River canal by the Board of Rivers and Harbors, U. S. A. L. A. Manchester, general counsel Youngstown Sheet & Tube Co., said that much of the company's ore, coal and steel could be shipped via the canal, effecting substantial savings. A. E. Adams, Youngstown, a director of the Youngstown Sheet & Tube Co. and member of the executive committee of the Trumbull Steel Co., also spoke in behalf of the canal, as did T. W. Guthrie, Pittsburgh, president Hillman Coal & Coke Co.

Among those scheduled to speak in behalf of the canal, not all of whom were given this opportunity, were A. B. Shepherd, Jones & Laughlin Steel Corporation, Pittsburgh; R. R. Strayer, Follansbee Brothers Co.; J. D. Waddell, Waddell Steel Co., Niles, Ohio.

CORRESPONDENCE

Bad Castings and Scrap in the Blast Furnace Burden

To the Editor: The article on "Bad Castings and Furnace Scrap" by H. H. Hopkins, published in your issue of Nov. 5, is of great interest and timely, but the conclusion reached—that the evils attributed to the use of scrap are probably overrated—does not fit well with my own observations in daily foundry practice.

The fact that many heavy buyers do not consider brand, location or furnace companies but only price when purchasing pig iron is no criterion, as their product may not be measured by the standards of strict specifications. Where only the highest grade of work may be turned out, the brands of pig irons used are very much the subject of anxious thought today, and the fact that not only has the American Foundrymen's Association felt constrained to authorize the study of methods by which to judge the quality of pig iron but the German Foundrymen's Association has undertaken to make a similar investigation, in conjunction with the blast furnace committee of the Verein Deutscher Eisenhuettenleute, would show that the subject is a very live one.

Variations in Pig Iron Analysis

That there are great variations in the physical properties of pig irons of the same analysis has long been recognized. Similarly in the iron of the castings made by remelting these pig irons. The writer was probably the first to call attention to the influence of iron oxides dissolved in the metal as the underlying cause of trouble, and after years of contention this is now generally recognized as true. The beneficiation of a cast iron by the retention of dissolved oxides, as claimed by Johnson, has not worked out in practice. True, these irons are stronger and chill deeper, but this can be caused by a higher combined carbon content due to the higher freezing points these irons have. A lower silicon content, or more steel scrap in the mixture, will do the same. The foundryman has learned that rusty scrap does not bother him, but "burnt" grate bars and similar material do. He now finds that he has to give more attention than ever to his cupola melting practice to get passable results with the general run of pig irons he buys, and he is badly worried. Hence the action of the foundrymen's associations cited.

The case of the defective castings noted by Mr. Hopkins was certainly not the result of "dirty iron" but of plain internal shrinkages. With the riser on the thin section and liquid iron in the heavy section below, the better the quality of the iron used the worse the shrinkages, since a purer iron (that is, one more free from dissolved oxides) will remain fluid longer than an oxidized iron. In my own practice I often advise the introduction of more scrap in the mixture simply to make the metal set faster and thus feed itself better before setting, in cases such as the one in question. It is quite possible that the trouble, righting itself when the pig iron was changed, came from substituting a poorer pig iron for a good one.

British Iron Superior

Foundrymen were badly shocked a few years ago when Mr. Cooke, of England, brought out the fact that English iron of similar analysis to ours gave much stronger and better results. We had to swallow the bitter pill, because the fact is as he says. The reason for it, however, is understandable when remembering that British furnaces may make 250 tons daily under a comfortable running gait while we here force a much higher tonnage from such a furnace. With ample time for a perfect reduction of the ore and less opportunity for reoxidation of the drops of iron passing into the crucible of the furnace, no wonder their iron is better when it gets to the foundries.

Our blast furnaces are all in the unfortunate position that their ore and fuel supplies represent high labor costs. They have turned to using enormous amounts of scrap to even up costs and thus remain live factors in the game. What foundrymen get as a consequence is a desulphurized but not a deoxidized cupola pig metal out of blast furnaces, and this is not hard to understand. As Mr. Hopkins rightly surmises, the scrap charged goes down pretty far before melting. But this is to a point where the ores have been fully reduced to the regular iron sponge of blast furnace practice. The iron sponge is melted and takes up its carbon and silicon in usual course but the drops of molten scrap descend through the melting zone in an atmosphere practically that of the cupola—that is, carbon monoxide and dioxide mixed—and have only the advantage of touching high lime slags which desulphurize them to the usual blast furnace pig iron point. In other respects, this melted cast iron scrap is just the same as metal from the cupola—that is, a more or less oxidized product. The greater the percentage of ore used in the burden, the greater the dilution of the undesirable oxides contained in the melted scrap.

Remelted Scrap Not Foundry Iron

When the foundryman buys pig iron he does not want remelted scrap. He can do his own remelting of scrap if he wants to shave his costs and take a chance. Lime does not deoxidize, whether in blast furnace or cupola. It is a question whether, under the temperatures existing, the carbon dioxide present does not actually oxidize the iron in the tuyere zone of the furnace, as in that of the cupola, if the drops of metal do not pass downward fast enough. Hence one of the reasons for the high quality of charcoal irons, particularly the cold blast variety, where the zone of carbon dioxide around the tuyeres is very small indeed.

Another defect in blast furnace practice where much scrap is used is the ability to cut the coke percentage, as there is no need of a reducing action. The tonnage is greatly increased without a corresponding increase in fuel. It is well known that some of the high qualities of the nickel-chrome pig irons, titanium iron, and the low-silicon irons made for malleable castings purposes are due to the high fuel percentages of the burden required to get the results aimed for.

Scrap as a Permanent Factor

The unfortunate aspect of the furnace scrap burden situation is that it will likely remain with us hereafter. If the conclusion reached by Mr. Hopkins—that the use of scrap in furnaces "is an economic necessity and foundries must alter their practice, if that be required, so that sound castings can be produced from pig iron so made"—then it may seem the proper time for the larger purchasers of pig iron, who must produce high grade work, to have their own blast furnaces and run them for the good of the foundry rather than for the benefit of the furnace, and to sell their surplus to foundrymen requiring high class metal.

The difficulties the furnaces are laboring under should not be underrated by any means, and unquestionably few of them enjoy making cupolas of their stacks. But to sell at recent prices and live has meant turning to the use of cheaper materials possible of use in the furnace, and scrap was the natural recourse. It has taken some time to recognize the demoralizing effect of using substitutes for good ores in blast furnace practice here and the writer has elsewhere stated that there is real need for a blast furnace research association which can investigate the problem at issue on broad and comprehensive lines.

Failing this, it were well, in the estimation of the writer, that the newly authorized committee of the American Foundrymen's Association on means of testing the quality of pig irons work jointly with a similar committee of blast furnace men to be created for the purpose. Good will result from this and eventually tolerances might be established in blast furnace operation which will restrict practice in making foundry pig irons and result in better and safer metal for the foundry.

RICHARD MOLDENKE.

Watchung, N. J., Nov. 6.

Radical Changes in Cast Pipe Rates

Proposed Mileage Scale Calls for Reductions from Eastern Foundries to Points South of Potomac and Ohio Rivers— Rates from Birmingham Increased

WASHINGTON, Nov. 17.—Rates on cast iron pipe and fittings in carloads from foundries in Alabama and Tennessee to points both south and north of the Potomac and Ohio Rivers will be greatly increased, while rates from cast iron pipe foundries in the Eastern section of the country to points south of these rivers will be considerably reduced if the Interstate Commerce Commission adopts recommendations made in a report last week by Examiner Burton Fuller. Among Northern centers of production that would be affected by the rate revision are the districts comprising Lansdale and Quakertown, Pa.; Somerville, N. J.; Norristown, Pa.; Portchester and Brooklyn, N. Y.; Baltimore, and related points.

As in his recent report concerning rates on steel castings from Attica, Ind., Examiner Fuller in the cast iron pipe case proposed a mileage scale for the removal of alleged undue prejudice. The mileage scale also was proposed by Examiner William Cheseldine as the basis for making rates on iron and steel from Knoxville, Tenn. The scales suggested in these cases by both Examiner Fuller and Examiner Cheseldine were on the Jones & Laughlin basis, but that particular scale is not suggested in the cast iron pipe report. The mileage scale for making rates from the South was outlined by the commission itself in the Southern rate investigation proceedings.

The proposal to increase rates on cast iron pipe from foundries in the South is in direct contrast with the recent decision of the commission reducing rates on pig iron from Alabama, Tennessee and other Southern points and to a recent report proposing lower iron and steel rates from Knoxville, Tenn.

Indicative of the sweeping change that would come in rates on cast iron pipe if the proposed scale of Mr. Fuller were adopted, is that the rate from Birmingham to Louisville, Ky., would be increased from $4.12 to $6.40 per net ton, an advance of $2.28, while from Lansdale and Quakertown to Louisville the rate would be decreased from $10.90 to $9.40, a drop of $1.50. The impression has been given that the report of Mr. Fuller is likely to be regarded as a basis for establishing new rates rather than as a recommendation that will be accepted in toto.

The report grew out of two complaints, one of them by the Krupp Foundry Co., Lansdale and Quakertown, Pa., and Chattanooga, Tenn., and the other by the Somerville Iron Works, Somerville, N. J. Specifically Mr. Fuller said that the commission should find that rates on cast iron pipe and fittings in carloads from Lansdale and Quakertown to destination in Maryland, Delaware, Virginia, the Carolinas, Tennessee, Kentucky, Georgia and Alabama are not unreasonable, but are unduly prejudicial to Lansdale and Quakertown, and unduly preferential to Birmingham, Anniston, Gadsden and Holt, Ala., and Chattanooga, Knoxville and South Pittsburg, Tenn. He also held that rates on like traffic from Chattanooga to destinations east of the Mississippi and north of the Ohio and Potomac Rivers and to destinations in the States of Kentucky, West Virginia, Virginia, the Carolinas, Maryland and the District of Columbia are not unreasonable, but are unduly prejudicial to Chattanooga and unduly preferential to the other Southern producing points.

Producers of cast iron pipe at Boyertown, Lenfield and Norristown, Pa.; Bridgeton and Hainesport, N. J.; Portchester and Brooklyn, N. Y., and Baltimore, intervened in support of the complaint of the Somerville Iron Works. They apparently assumed that whatever relief is accorded the Somerville works will necessitate corresponding adjustments from their plants and in that view they were supported by the railroads.

The basis for the proposed adjustment was the contention that the rates on cast iron pipe from the Southern foundries are greatly depressed when compared with rates from Northern foundries, depriving Northern producers of an opportunity to compete at points where they ordinarily should be able to market their material.

Examiner Fuller states that the Eastern complainants' plants have an annual capacity of about 18,000 tons and that the Chattanooga complaint's plant has an annual capacity of about 25,000 tons. He points out that there are 44 manufacturers of cast iron pipe in the Birmingham-Chattanooga district, 33 of which manufacture soil pipe, three of which are located at Chattanooga. The annual capacity of the entire group is about 300,000 tons of soil pipe and 568,000 tons of pressure pipe.

Sixty Per Cent of Pipe Production in Birmingham District

Explaining that large cities constitute the principal market for this commodity, the examiner said that of the total requirements of the country about 30 per cent is produced at the Eastern plants and about 70 per cent at Southern plants, 60 per cent of the latter being produced in the so-called Birmingham district. The Southern producers dispose of their products all over the United States, it is stated, in competition with the Eastern manufacturers. Chattanooga ships about 30 per cent of its output to Eastern cities, according to

*Proposed Scale of Rates on Cast Iron Pipe from *Eastern and Southern Foundries*

Distance	Rate per Net Ton	Distance	Rate per Net Ton	Distance	Rate per Net Ton
10 miles and under	$1.40	260 miles and over 240	$5.20	725 miles and over 700	$ 9.00
15 miles and over 10	1.60	280 miles and over 260	5.40	750 miles and over 725	9.20
25 miles and over 15	1.80	300 miles and over 280	5.60	800 miles and over 750	9.40
30 miles and over 25	2.00	320 miles and over 300	5.80	825 miles and over 800	9.60
40 miles and over 30	2.20	340 miles and over 320	6.00	875 miles and over 825	9.80
50 miles and over 40	2.40	360 miles and over 340	6.20	900 miles and over 875	10.00
60 miles and over 50	2.60	400 miles and over 360	6.40	950 miles and over 900	10.20
75 miles and over 60	2.80	420 miles and over 400	6.60	975 miles and over 950	10.40
85 miles and over 75	3.00	440 miles and over 420	6.80	1000 miles and over 975	10.60
95 miles and over 85	3.20	460 miles and over 440	7.00	1025 miles and over 1000	10.70
110 miles and over 95	3.40	480 miles and over 460	7.20	1050 miles and over 1025	10.80
130 miles and over 110	3.60	520 miles and over 480	7.40	1075 miles and over 1050	10.90
140 miles and over 130	3.80	540 miles and over 520	7.60	1100 miles and over 1075	11.00
160 miles and over 140	4.00	560 miles and over 540	7.80	1125 miles and over 1100	11.10
170 miles and over 160	4.20	580 miles and over 560	8.00	1150 miles and over 1125	11.20
190 miles and over 170	4.40	600 miles and over 580	8.20	1175 miles and over 1150	11.30
200 miles and over 190	4.60	650 miles and over 600	8.40	1200 miles and over 1175	11.40
220 miles and over 200	4.80	675 miles and over 650	8.60	1225 miles and over 1200	11.50
240 miles and over 220	5.00	700 miles and over 675	8.80		

*To points south of Ohio and Potomac Rivers only.

*Proposed and Present Rates Per Net Ton on Cast Iron Pipe from *Eastern and Southern Foundries*

To	From Quakertown and Lansdale, Pa., Proposed Rates	Present Rates	From Birmingham, Ala. District, Proposed Rates	Present Rates	From Chattanooga and South Fittsburg, Tenn., Proposed Rates	Present Rates	From Knoxville, Tenn., Proposed Rates	Present Rates
Louisville, Ky.	$9.40	$10.90	$6.40	$4.12	$5.80	$3.68†	$5.40	$3.68
Covington, Ky.	8.80	9.40	7.40	4.45	6.00	3.68†	5.60	3.68
Memphis, Tenn.	11.10	14.80	5.20	3.49	5.80	3.49†	6.80	4.05
Montgomery, Ala.	10.70	13.20	3.40	1.80	5.00	2.82†	6.20	3.38
Altanta	9.80	12.00	4.20	2.82	3.80	2.82	4.60	3.15
Columbia, S. C.	8.60	9.70	6.60	6.20	6.40	6.20	6.40	6.20
Asheville, N. C.	8.60	9.70	6.40	7.09	5.20	6.20	3.60	7.70
Gastonia, N. C.	8.20	9.00	6.40	6.20	6.40	6.20	5.20	5.70
Charlotte, N. C.	7.80	8.80	6.80	6.20	6.40	6.20	5.40	5.70
Raleigh, N. C.	7.00	8.10	8.20	7.70	7.40	6.80	8.20	6.20
Briston, Va.-Tenn.	8.00	11.30	6.40	4.17	5.20	3.82†	3.80	2.93
Norfolk, Va.	6.40	5.70	9.40	4.95	8.60	4.62	7.80	4.08
Lynchburg, Va.	6.20	7.60	8.20	4.95	7.90	4.62	6.00	4.08
Washington	4.40	4.50	9.40	6.48	8.40	6.12	7.40	5.58
Cumberland, Md.	5.40	5.90	9.80	8.64	9.00	8.28	8.40	7.74
Baltimore	3.80	3.50	9.40	6.84	8.60	6.48	7.80	5.94
Wilmington, Del.	2.80	3.50	9.80	8.05	9.20	7.69	8.40	7.15
Harrisburg, Pa.	....	....	9.80	7.09	9.00	6.73	8.40	6.19
Philadelphia	....	....	10.10	8.05	9.40	7.69	8.40	7.15
Johnstown, Pa.	....	....	10.20	9.00	9.80	8.28†	9.20	8.28
New York	....	....	10.60	9.25	9.80	8.89	9.20	8.35
Syracuse	....	....	....	9.49	10.20	9.13	9.80	8.59
Boston	....	....	11.50	10.08	10.90	9.72	10.60	9.18

*To points south of Ohio and Potomac Rivers only.
†From Chattanooga. Rates from South Pittsburgh range from 10 to 76c. lower.

the report, and about 65 per cent to destinations in Central territory.

The examiner said that Eastern producers have as yet been unable to market any of their commodity south of the Potomac and Ohio Rivers, but stated that they would be able to do so with a proper rate adjustment. The value of the commodity, f.o.b. Eastern plants, is given at about $60 per ton, as compared with $45 to $50 per ton, f.o.b. Southern plants. It is declared that on account of its high phosphorus content the commodity as produced in the South is more brittle and hence more subject to breakage, while being prepared for final installation, than the product of Northern foundries. The cost of production in the Birmingham district ranges from $2.50 to $4 per ton less than at the Eastern plants, the report states.

At this point the examiner said:

Rates from South Low on Distance Basis

The rates from the Southern producing points are lower, distance considered, than the rates from the Eastern points, and the rates from the Birmingham district are in turn lower, distance considered, than the rates from Chattanooga. To the territory north of the Ohio and Potomac Rivers the rates from the Southern points were originally based on rates per net ton to the river gateways and Virginia cities the same as the corresponding rates per long ton on pig iron, plus the proportions which the connecting lines were willing to accept beyond.

To this territory Chattanooga originally enjoyed a differential of 25c. under Birmingham, except to points in Central territory to which Chattanooga is directly intermediate, in which case the latter enjoyed a differential of 50c. As a result of the general increases and reductions these differentials have generally become 36c. and 72c., respectively, although in some instances on account of the operation of the fractional rule or for other more obscure causes they range as low as 24c. and as high as 85c. The present rates from the Southern points to the East are about 18 per cent lower than the corresponding rates to the rest of the territory.

How Mileage Rates Are Applied

In computing distances under the proposed scale, the examiner says the shortest route by existing connections for the interchange of carload traffic should be used, embracing as a maximum the lines of not more than three line-haul carriers. Also he said that in applying the rates prescribed, reasonable groupings or differential adjustments may be employed, provided the rates under each group or differential adjustment and in the aggregate average substantially the same as if made from and to each point separately under the scale. It is further provided that in publishing rates from the Southern producing points to destinations north of the Ohio and Potomac Rivers the rates from Chattanooga shall not exceed $1 under those from Birmingham and 60c. over those from Nashville to destinations as to which Chattanooga is intermediate to Birmingham, 60c. under the rates from Birmingham and 60c. over those from Knoxville to points east of such destinations, and 50c. under those from Birmingham and $1 over those from Nashville to points west of such destinations.

EXTRAS ON COLD FINISHED

All Sizes of Rounds Command More Than Base —Screw Stock Extra Imposed

Leading makers of cold-finished steel bars and shafting have issued a new card of extras dated Nov. 12. One interesting change in the new card is that all sizes of rounds now carry an extra and the base price hereafter will be useful merely as a basis on which to figure the size extras. Rounds, 2¼-in. to 2⅞-in., which formerly were sold at the base price, now carrying an extra of 15c. per 100 lb. The size extra for 2 15/16-in. to 3⅝-in. in the new card is 35c. per 100 lb. against 30c. in the old one, and 1½-in. to 2 3/16-in. now carry an extra of 25c. per 100 lb., instead of 15c., as formerly. Size extras otherwise are the same as in the old card dated March 10, 1924.

Piston rod steel extras have been revised upward from a net of 50c. per 100 lb. to a range of 50c. to $1.50 for rounds of ⅛-in. to 2-in. The new card also imposes a charge of 10c. per 100 lb. for screw stock bars, either Bessemer or open-hearth, this charge being made to cover the extra now exacted by makers of hot-rolled bars of screw stock analysis. With these exceptions, the new card and the old one are identical. The revised extras on rounds and piston rod steel, in detail, are as follows:

Rounds

Net Extras for Size per 100 Lb. Net
(Diameters in Inches)

⅛ to 1/32	$3.00	1⅛ to 2 1/32	$0.25
7/32 to 9/32	2.00	2⅛ to 2⅞	.15
¼	1.25	2 1/32 to 3⅛	.35
11/32	1.00	3 1/32 to 3⅞	.50
⅜	.90	3 1/32 to 4⅜	.80
7/32 to ½	.70	4 1/32 to 4⅞	1.00
9/32	.55	4 1/32 to 5⅜	1.25
11/32 to ¾	.40	5 1/32 to 5⅞	1.75
13/32 to 1 1/32	.35	5 1/32 to 6⅜	2.25
1 3/32 to 1 7/32	.30	6 1/32 to 7	3.00

Piston Rod Steel

Uniformity to size throughout the entire length of the bar and carefully selected surface. These extras apply in addition to the extras for accuracy, short and long lengths, etc.

Rounds only, per 100 lb. net

⅛ in. to 1/32 in.	$1.50	For sizes larger than 2 in. special prices will be quoted.
5/32 in. to ¾ in.	1.00	
13/32 in. to 2 in.	.50	

These extras do not apply on "special finish" such as "needle bar," etc.

Iron and Steel Markets

Growing Volume of First Quarter Sales

Consumers Adding to Stocks as Steel Mills Seek Advances—Railroads Buy 8000 More Cars—New Record in Structural Steel—Foreign Coke in New England

STEEL mills have put more first quarter business on their books in the past week, in some cases considerable amounts, particularly steel bars, plates and structural material. Thus the situation is growing more like that of November and December in the past three years, when manufacturing buyers, while not currently consuming more steel, were adding to the stocks they carried.

As in the previous year-end movements, steel manufacturers are naming higher prices for later deliveries, without rigidly drawing the line between December and January-February prices. However, some mills have not yet opened their books for the first quarter.

November thus far has brought out more orders than the first half of October. Operations also show a gain, though not so great—the present average being 83 to 84 per cent of capacity—so that unfilled orders are still increasing.

The new developments in prices are an advance of $1 a ton on billets and sheet bars, or to $35 and $36, Pittsburgh, respectively, the putting up of first quarter sheets $2 a ton by some independent mills, an advance in alloy steel bars, and the naming of the present prices on cold-rolled and hot-rolled strips for first quarter delivery.

On first quarter bars, plates and shapes the mills are aiming at a 2c. market. They are succeeding as to bars, in which orders are large; but 1.90c. is done in shapes, and Pittsburgh plates for Eastern shipment go at 1.80c. At Eastern mills 1.60c., Pittsburgh, is still possible.

The promise of larger buying of railroad equipment still holds good. Orders for more than 8000 freight cars requiring close to 100,000 tons of steel were placed in the week. The Lehigh Valley is inquiring for 1000 and the Wabash will probably buy 2000 instead of 1000. Rock Island and the Burlington are early prospects. Two roads are asking for bids on 25 locomotives each.

Rail orders are now well above the 1,500,000 ton mark. The week's distribution includes 42,000 tons to Chicago mills and two Chicago roads are figuring on 19,000 tons.

Fabricated steel bookings for the ten months of this year, exceeding 2,200,000 tons, are one-sixth more than those of the same period in 1924, and by this time in November have probably passed the total of last year, which was a record.

The week's structural steel awards were 28,500 tons, less than half the previous week's total. An office building in New York and a New York State hospital in Brooklyn each take 4500 tons. New York subway work, now being bid on, will require 3750 tons and a New York theater 2500 tons. Inquiries total only 14,000 tons.

October records of independent sheet manufacturers show sales nearly 16 per cent in excess of production. Compared with September, production in October was 19 greater, sales 41 per cent and shipments 27 per cent.

A canvass of sheet shipments in the 60 days ended Oct. 31 showed an average price of 3.10c. per lb. on base sizes, and thus tonnage rates of sheet and tin mill workers in mid-Western mills remain unchanged for the November-December period.

Shafting under the new card of extras on cold-finished steel, is now 15c. and 35c. per 100 lb. above base in the common sizes. All rounds hereafter take an extra above the base price, depending on diameter.

Foundry operations at a number of Central Western centers show that early fall gains are well maintained, and activity is marked at some implement foundries. This situation strengthens pig iron sellers, and furnace stocks are being reduced in the South rapidly.

The sharp pig iron advances have slowed down buying in all markets. There is also the halting effect of a further drop in coke prices, $5 to $5.50 being this week's range, against $6 last week.

Foreign coke has invaded New England, as in the last anthracite strike, several thousand tons of English coke going to Providence and Portland. Boston has received the first of seven 5000-ton lots of Westphalian coke.

Sales of coke by Ohio and western Pennsylvania steel companies for general consumption are expected to improve fourth quarter earnings statements.

Finished steel, according to THE IRON AGE composite price, has advanced to 2.439c. per lb., from 2.431c. last week. It still is 1½ per cent below the level of one year ago.

The pig iron composite price remains unchanged at $21.29 per ton, compared with $19.88 one month ago and $19.88 one year ago.

Pittsburgh

Independents Advance Sheets—Pig Iron Quiet and Coke Weak

PITTSBURGH, Nov. 17.—Steel manufacturers in this and nearby districts now regard 1925 as completed so far as their ability to take more business for shipment within the calendar year is concerned, and have started setting the stage for the first quarter of 1926. Several of the independent sheet makers have announced further advances of $2 a ton in the various finishes, but at the same time have indicated a willingness to take first quarter contracts at the new levels. On previous price announcements the stipulation has been that shipments at mill convenience and that orders accompanied with specifications rather than contracts were desired. Some makers of hot-rolled strips, hoops

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous

For Early Delivery

Pig Iron, Per Gross Ton:	Nov. 17, 1925	Nov. 10, 1925	Oct. 20, 1925	Nov. 18, 1924
No. 2X, Philadelphia‡	$23.76	$23.76	$22.76	$23.26
No. 2, Southern, Cin'ti†	**24.67**	**25.05**	**23.55**	**22.05**
No. 2, Southern, Cin'ti†	25.05	25.05	23.55	22.05
No. 2, Birmingham, Ala.†	21.00	21.00	19.50	18.00
No. 2 foundry, Ch'go furn.*	23.00	23.00	21.50	21.00
Basic, del'd, eastern Pa.	22.50	22.50	21.00	20.00
Basic, Valley furnace	20.00	20.00	18.50	19.00
Valley Bessemer del'd P'gh	22.76	22.76	21.26	22.26
Malleable, Chicago furn.*	23.00	23.00	21.50	21.00
Malleable, Valley	20.50	20.50	19.00	19.50
Gray forge, Pittsburgh	21.76	21.76	20.26	20.76
L. S. charcoal, Chicago	29.04	29.04	29.04	29.04
Ferromanganese, furnace	115.00	115.00	115.00	105.00
Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Bess. billets, Pittsburgh	**35.00**	34.00	33.50	35.50
O.-h. billets, Pittsburgh	**35.00**	34.00	33.50	35.50
O.-h. sheet bars, P'gh	**36.00**	35.00	33.50	37.00
Forging billets, base, P'gh	40.00	40.00	40.00	40.50
O.-h. billets, Phila	**40.30**	39.30	39.30	41.17
Wire rods, Pittsburgh	45.00	45.00	45.00	45.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	1.90	1.90	1.90	1.90
Light rails at mill	1.65	1.65	1.65	1.80
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	**2.22**	2.12	2.12	2.32
Iron bars, Chicago	**1.95**	1.90	1.90	2.10
Steel bars, Pittsburgh	2.00	2.00	2.00	2.00
Steel bars, Chicago	2.10	2.10	2.10	2.10
Steel bars, New York	2.34	2.34	2.34	2.34
Tank plates, Pittsburgh	**1.90**	1.85	1.80	1.80
Tank plates, Chicago	2.10	2.10	2.10	2.20
Tank plates, New York	1.94	1.94	1.94	2.14
Beams, Pittsburgh	1.90	1.90	1.90	2.00
Beams, Chicago	2.10	2.10	2.10	2.20
Beams, New York	2.24	2.24	2.24	2.24
Steel hoops, Pittsburgh	2.50	2.50	2.40	2.50

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	Nov. 17, 1925	Nov. 10, 1925	Oct. 20, 1925	Nov. 18, 1924
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh	3.25	3.25	3.10	3.50
Sheets, black, No. 28, Chicago dist. mill	3.35	3.35	3.25	3.60
Sheets, galv., No. 28, P'gh	4.50	4.50	4.20	4.60
Sheets, galv., No. 28, Chicago dist. mill	4.60	4.60	4.35	4.70
Sheets, blue, 9 & 10, P'gh	2.40	2.40	2.25	2.70
Sheets, blue, 9 & 10, Chicago dist. mill	2.50	2.50	2.40	2.80
Wire nails, Pittsburgh	2.65	2.65	2.65	2.75
Wire nails, Chicago dist. mill	2.70	2.70	2.70	2.85
Plain wire, Pittsburgh	2.50	2.50	2.50	2.50
Plain wire, Chicago dist. mill	2.55	2.55	2.55	2.60
Barbed wire, galv., P'gh	3.35	3.35	3.35	3.45
Barbed wire, galv., Chicago dist. mill	3.40	3.40	3.40	3.55
Tin plate, 100 lb. box, P'gh	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	**$18.50**	$18.25	$17.50	$19.00
Carwheels, Philadelphia	18.50	18.50	18.50	17.50
Heavy steel scrap, P'gh	19.50	19.50	18.50	20.00
Heavy steel scrap, Phila.	17.50	17.50	17.00	18.00
Heavy steel scrap, Ch'go	16.00	16.00	16.00	17.25
No. 1 cast, Pittsburgh	18.00	18.00	17.50	18.00
No. 1 cast, Philadelphia	18.00	18.00	18.00	18.00
No. 1 cast, Ch'go (net ton)	18.25	18.25	17.75	18.00
No. 1 RR. wrot. Phila.	18.50	18.50	18.00	18.50
No. 1 RR. wrot. Ch'go (net)	15.75	15.75	14.50	15.50
Coke, Connellsville,				
Per Net Ton at Oven:				
Furnace coke, prompt	*$5.00*	$6.00	$7.50	$3.00
Foundry coke, prompt	*6.00*	7.00	7.50	4.00
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	*14.62½*	14.87½	14.62½	14.00
Electrolytic copper, refinery	*14.37½*	14.55	14.37½	13.75
Zinc, St. Louis	*8.45*	8.75	8.30	6.92½
Zinc, New York	*8.80*	9.10	8.65	7.27½
Lead, St. Louis	9.50	9.50	9.25	8.87½
Lead, New York	*9.85*	9.90	9.60	9.00
Tin (Straits), New York	**63.62½**	62.37½	62.50	54.75
Antimony (Asiatic), N. Y.	20.00	20.00	18.00	15.00

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

THE IRON AGE Composite Prices

Finished Steel

Nov. 17, 1925, 2.439c. Per Lb.

One week ago	2.431c.
One month ago	2.403c.
One year ago	2.474c.
10-year pre-war average	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

	High		Low	
1925	2.560c.,	Jan. 6	2.396c.,	Aug. 18
1924	2.789c.,	Jan. 15	2.460c.,	Oct. 14
1923	2.824c.,	April 24	2.446c.,	Jan. 2

Pig Iron

Nov. 17, 1925, $21.29 Per Gross Ton

One week ago	$21.29
One month ago	19.88
One year ago	19.88
10-year pre-war average	15.72

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

	High		Low	
1925	$22.50,	Jan. 13	$18.96,	July 7
1924	22.88,	Feb. 26	19.21,	Nov. 3
1923	30.86,	March 20	20.77,	Nov. 20

and bands, filled up with business for shipment over the remainder of this year, have advanced prices $2 a ton on new business, which amounts to the naming of the first quarter price. On first quarter business in heavy tonnage products 2c., base Pittsburgh, is plainly the aim of the manufacturers and on orders for early shipment they are moving toward that level. In this immediate territory 1.90c., base Pittsburgh, appears to be as low as any of the local and nearby mills will go on plates, although it is admitted that on Eastern business that price is not yet obtainable.

The American Sheet & Tin Plate Co. is yet to announce its first quarter and first half prices on tin plate and has not followed the advances in sheets by independent makers. Prices on semi-finished steel are also tightening, with billets, slabs and sheet bars up $1 a ton and some business reported at the advance.

So far as plant operations and specifications and shipping instructions against orders already in are concerned, the steel market still is very active. While there is considerable pressure on steel makers to name prices on first quarter business, the end of the year with its inventories is near at hand and the desire to avoid unwieldy stocks is strong enough to have some effect on nearby buying. Wire products suffer to some extent because of this consideration and a rather quiet market in pipe is partly accounted for by the same cause. Steel ingot capacity in this and nearby districts still is engaged to about 83 per cent and the list of active blast furnaces has been increased by the blowing in of an Eliza furnace of the Jones & Laughlin Steel Corporation. No further advances in pig iron have taken place in the past week, as trading has quieted down. Producers are well sold against stocks

and probable production over the remainder of the year, which means that consumers are well protected for the same period, and there is not much tendency on the part of producers to seek first quarter business until they have some definite idea of coke costs. Coke has suffered a further decline of $1 a ton, but current weakness is regarded as temporary and likely to be followed by higher prices unless there is a settlement of the anthracite strike. Higher prices for scrap in outside consuming points have brought about a firmer tone in the local market.

Pig Iron.—The market has grown considerably quieter since a week ago but has lost none of its recent firmness, since the position of producers has been greatly improved by recent sales. Despite the sharp break in coke, there is as yet no sign that first quarter tonnages will be available at prices comparable with those for the present quarter. The Westinghouse Electric & Mfg. Co. has closed for about 3500 tons of foundry iron for its Trafford, Pa., plant, paying $20.50, base Valley furnace, and the usual silicon differentials. A sale of 1000 tons of foundry iron to a local melter brought the same price. Otherwise business has been confined to small lots. Melters are taking shipments against purchases with great freedom and there are some cases where orders for last quarter iron already have been completed, while some users are ordering out iron bought originally for shipment in the first quarter of next year.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$20.00
Bessemer	21.00
Gray forge	20.00
No. 2 foundry	20.50
No. 3 foundry	20.00
Malleable	20.50
Low phosphorus, copper free	27.50

Ferroalloys.—Only small tonnages of ferromanganese are being moved in this market but they are in all cases at full quotations. Lack of interest in future requirements, notably on the part of large consumers, is still commented on. The explanation probably is that the largest Pittsburgh independent is still working on a big stock built up from ore brought in prior to the time the present tariff went into effect, and large Youngstown companies have been drawing supplies from the country's two largest steel companies which have a surplus of ferromanganese over their own requirements. Some talk is heard of higher prices for domestic material on account of the coke price situation, but this would imply an advance by British producers or a loss of business by American makers. Commercial producers of spiegeleisen are well supplied with business and their prices are firm. Nothing has yet been said as to 1926 prices for ferrosilicon of higher silicon content. Prices are given on page 1407.

Fluorspar.—Foreign material is stronger and $17, c.i.f. Atlantic seaboard, duty paid, now appears to be the minimum price on 85 per cent grade of gravel spar, while some importers' agents state that $17.25 is as low as they are authorized to take business.

Semi-Finished Steel.—Makers continue to revise quotations upward, several of them having announced a further advance of $1 per ton. This makes 4-in. billets, or the equivalent dimensions in slabs, $35, Pittsburgh or Youngstown, and sheet bars, $36. We note sales amounting to 3000 tons of billets at $35, Pittsburgh. Much difficulty now would be encountered in securing tonnages of either billets or sheet bars at less, as the makers have a good deal of business for this year and are not only independent of more, but would also like to raise the average price of their bookings. Further advances in sheet prices are a factor in the sheet bar price change. Wire rods are moving steadily and some makers note slightly heavier specifications than recently. Skelp prices nominally are stronger because of the stronger market in plates. Prices are given on page 1407.

Rails and Track Supplies.—The trade here still awaits action by the Baltimore & Ohio Railroad on 3,000,000 tie plates, prices against which were invited a few weeks ago. The New York Central spike and tie plate business will be distributed this week and Pittsburgh makers expect a share. Considerable accessory business is expected in view of the liberal rail bookings for 1926 delivery already closed. Prices do not change much. There is, however, a disposition to ask more for light rails because of the appreciation in the value of the raw steel, to say nothing of better demand. The price range on billet rails still is 1.65c. to 1.70c., base, mill, but it takes a larger order to bring out the lower figure than recently. Prices are given on page 1405.

Wire Products.—There is a very steady movement in these lines and it is a close approximation of actual consumption, since the end of the year is too near at hand for either jobbers or manufacturing consumers to start building up stocks. There is as yet no move among producers to seek higher prices, although the comment is rather frequent that they are too low for a fair profit. Demands have not yet assumed proportions which make it difficult for mills to ship as fully and as promptly as desired and with backlog business lacking, the present aim is to maintain prices. In that direction their efforts are succeeding. Prices are given on page 1405.

Tubular Goods.—By and large, pipe business is good for the time of year, but it is running heavier in the butt weld than in the lap weld sizes. A reversal of this order would be more pleasing to manufacturers, since lap weld pipe capacity constitutes between 65 and 70 per cent of the welded pipe capacity and the greater the engagement of that capacity, the higher the general average of operations. Pipe mill output is somewhat lower than recently, because distributors are not disposed to add to their stocks with inventory time so close at hand and some makers with good-sized stocks are able to meet much of the current demand with less new production, at the same time escaping heavy stocks at the end of the year. Not much real activity is looked for over the next 30 days. Prices, meanwhile, are holding well. Boiler tubes are in fair demand, but competition is still sharp with prices weak. Discounts are given on page 1405.

Sheets.—Independent makers continue to seek higher prices, several of them in the past week having announced an advance of $2 a ton in black and galvanized and some a like advance in full finished sheets. The American Sheet & Tin Plate Co. as yet has made no change. Mills seeking the higher prices—3.35c., base, Pittsburgh, for black, 4.60c., base, for galvanized, and 4.50c., base, for full finished—are willing to take first quarter business at these levels. Former prices of these makers were expressly on the basis of shipment at mill convenience. Specifications and shipping instructions are being freely received on orders entered last month and there is still a good deal of pressure for shipment by automobile body builders. Strictly new business, however, is a little slow. Mill operations are high, with the general average somewhat above 90 per cent of rated capacity. Prices are given on page 1405.

Tin Plate.—No announcement yet has been made by the leading producer as to prices for the first quarter and half of next year. There is more than ordinary interest in the price because, once made, it rarely moves higher for a period of six months and the question of the price of pig tin over such a long period has to be given full weight. Never before in peace times has tin been as high at the time of naming tin plate prices. Tin plate business is good for this time of the year and a good deal of tonnage will be formally entered with the announcement of prices for next year.

Cold-Finished Steel Bars and Shafting.—The interesting feature of this division of the market is the announcement of a new card of extras dated Nov. 12, details of which are published elsewhere. Makers of hot-rolled bars are exacting the extra of $2 a ton for screw stock quality, beginning with first quarter business, and this change is reflected in the new card. This is one of the few important changes made. Business taken from the date of the card is affected by the change; this means on first quarter business, as consumers are well covered against their requirements

Prices of Finished Iron and Steel Products (Carload Lots)

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. P'gh mills	2.00c. to 2.10c.
F.o.b. Chicago	2.10c.
Del'd Philadelphia	2.32c.
Del'd New York	2.34c. to 2.44c.
Del'd Cleveland	2.19c.
F.o.b. Birmingham	2.15c. to 2.25c.
C.i.f. Pacific ports	2.35c.
F.o.b. San Francisco mills	2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills	2.00c. to 2.10c.

Rail Steel

F.o.b. mill	1.80c. to 1.90c.
F.o.b. Chicago	2.00c. to 2.10c.

Iron

Common iron, f.o.b. Chicago	1.95c. to 2.00c.
Refined iron, f.o.b. P'gh mills	3.00c.
Common iron, del'd Phila'phia	2.22c.
Common iron, del'd New York	2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill	1.85c. to 2.00c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.00c. to 2.10c.
Del'd Cleveland	1.89c. to 2.09c.
Del'd Philadelphia	1.92c. to 2.12c.
Del'd New York	1.94c. to 2.04c.
C.i.f. Pacific ports	2.25c. to 2.30c.

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mill	1.90c. to 2.10c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c. to 2.19c.
Del'd Philadelphia	2.12c. to 2.22c.
Del'd New York	2.24c. to 2.34c.
C.i.f. Pacific ports	2.30c. to 2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh,	2.50c. to 2.60c.
All gages, 6 in. and wider, P'gh	2.30c. to 2.40c.
All gages, 6 in. and narrower, Chicago	2.60c.
All gages, wider than 6 in., Chicago	2.50c.

Cold-Finished Steel

	Base Per Lb.
Screw stock and shaft'g, f.o.b. P'gh mills	2.50c.
Screw stock and shaft'g, f.o.b. Chicago	2.50c.
Screw stock, Cleveland	2.65c.
Shafting, ground, f.o.b. mill	*2.70c. to 3.00c.
Strips, f.o.b. P'gh mills	3.90c.
Strips, f.o.b. Cleveland mills	3.90c.
Strips, delivered Chicago	4.20c.
Strips, f.o.b. Worcester mills	4.05c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails	$2.65
Galv'd nails, 1-in. and longer	4.65
Galv'd nails, shorter than 1 in.	4.90
Galv'd staples	3.35
Polished staples	3.10
Cement coated nails, base, per count keg	1.85

	Base Per 100 Lb.
Bright plain wire, No. 9 gage	$2.50
Annealed fence wire	2.65
Spring wire	3.50
Galv'd wire, No. 9	3.10
Barbed wire, galv'd	3.35
Barbed wire, painted	3.10

	Per Cent off List
*Bale ties, carloads, to jobbers	75, 15 and 5
*Bale ties, carloads, to retailers	75, 10 and 6

	Per Net Ton
Woven wire fence, base, to retailers	$65.00

Chicago district mill and delivered Chicago prices are $1 per ton above the foregoing. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant, and Duluth, Minn., mills $2 a ton higher; Anderson, Ind., $1 higher.

*F.o.b. Cleveland.

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh	2.40c. to 2.50c.
Nos. 9 and 10, f.o.b. Ch'go dist. mills	2.50c.
Nos. 9 and 10, del'd Phila'phia	2.72c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh	3.25c. to 3.35c.
No. 28, f.o.b. Ch'go dist. mill	3.35c.
No. 28, del'd Phila'phia	3.57c.

Galvanized

No. 28, f.o.b. Pittsburgh	4.50c. to 4.60c.
No. 28, f.o.b. Chicago dist. mill	4.60c.
No. 28, del'd Phila'phia	4.82c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	3.25c. to 3.35c.
No. 28, f.o.b. Chicago dist. mill	3.35c.

Automobile Body Sheets

No. 22, f.o.b. Pittsburgh	4.40c. to 4.50c.

Long Ternes

No. 28, 8-lb. coating, f.o.b. mill	4.75c.

Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills	$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.	5.60

Terne Plate

(*F.o.b. Morgantown or Pittsburgh*)

(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.20	20-lb. coating I.C.	$15.50
8-lb. coating I.C.	11.50	25-lb. coating I.C.	17.00
15-lb. coating I.C.	14.35	30-lb. coating I.C.	18.35
		40-lb. coating I.C.	20.35

Rails

	Per Gross Ton
Standard, f.o.b. mill	$43.00

	Base Per Lb.
Light (from billets), f.o.b. mill	1.65c. to 1.70c.
Light (from billets), f.o.b. Ch'go mill,	1.80c. to 1.90c.
Light (from rail steel), f.o.b. mill	1.50c. to 1.60c.

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, ⅜ in. and larger	$2.80 to $3.10
Spikes, ½ in. and smaller	3.00 to 3.50
Spikes, boat and barge	3.25
Track bolts, all sizes	3.90 to 4.25
Tie plates, steel	2.35 to 2.50
Angle bars	2.75

Alloy Steel Bars

(F.o.b. Pittsburgh)

S. A. E. Series Numbers		Base Per 100 Lb.
2100*	(1½% Nickel, 10 to 20% Carbon)	$3.25 to $3.30
2300	(3½% Nickel)	4.60 to 4.70
2500	(5% Nickel)	5.80 to 5.90
3100	(Nickel Chromium)	3.60 to 3.70
3200	(Nickel Chromium)	5.25 to 5.35
3300	(Nickel Chromium)	7.25 to 7.35
3400	(Nickel Chromium)	6.50 to 6.60
5100	(Chromium Steel)	3.60
5200*	(Chromium Steel)	7.50 to 8.25
6100	(Chrom. Vanadium bars)	4.30 to 4.40
6100	(Chrom. Vanad. spring steel)	3.85
9250	(Silicon Manganese spring steel)	3.30
Carbon Vanadium (0.45 to 0.55 Carbon, 0.15 Vanad.)		4.20 to 4.45
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)		4.55 to 4.65
Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)		4.35 to 4.45
Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)		3.50 to 3.75
Chromium Molybdenum spring steel (1 — 1.25 Chrom., 0.30 — 0.50 Molyb.)		4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Welded Pipe

Base Discounts f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	⅛ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	13
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	58	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	2 to 3	61	50½
¼ to ⅜	47	30½	¼ to ⅜	+11	+54
½	53	42½	½	21	7
¾	58	47½	¾	28	12
1 to 1½	60	49½	1 to 1½	30	14

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased (on black) by one point, with supplementary discount of 5% and (on galvanized) by 1½ point, with supplementary discount of 5%. On iron pipe, both black and galvanized, the preferentials to large jobbers are 1, 5 and 2½% beyond the above discount.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in.	27	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1⅞ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3¼ to 4½ in.	— 9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ to 1½ in.	52	3½ to 3½ in.	47
1¾ in.	36	4 in.	50
2 to 2¼ in.	31	4½, 5 and 6 in.	45
2½ to 2¾ in.	39		

Hot Rolled

2 and 2¼ in.	34	3¼ and 3½ in.	50
2½ and 2¾ in.	42	4 in.	53
3 in.	48	4½, 5 and 6 in.	48

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing (New List)

	Per Cent off List
Carbon 0.10 to 0.30 base	50 to 55
Carbon 0.30 to 0.40 base	45 to 50

Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

to the end of this year. The basing price still is 2.50c., Pittsburgh mill, but the actual selling price under the new extras, will not be below 2.65c. on anything in cold-finished steel embraced in the card.

Plates.—Mills in this and nearby districts are not now taking business at less than 1.90c. base, Pittsburgh. It is admitted, however, that this price cannot be yet obtained on the business in the East in competition with Eastern mills. Local mills are better booked now than earlier in the year and consequently are less dependent on business from competitive districts. Prices are given on page 1405.

Hot-Rolled Flats.—Local mills have made no change in prices and, while some makers have come out with an advance of $2 a ton on first quarter business, there has been no such action locally. All makers are heavily committed and it is probable that much tonnage will be shipped in the first quarter against orders originally taken for shipment this year. Prices are given on page 1405.

Hot-Rolled Strips.—Mills in this district have not yet opened books for formal first quarter contracts, but have so much business booked that it looks as though a considerable part of it will become an obligation against first quarter production. The market still is quoted at 3.90c., base Pittsburgh.

Bolts, Nuts and Rivets.—Makers of bolts and nuts have not yet opened their books on first quarter contracts, and the announced intention of steel bar makers to exact the extra of $2 a ton for steel bars of screw stock analysis, rather suggests higher prices for that period. Specifications against fourth quarter contracts are coming in well and makers are busier. There is a good movement of rivets against orders placed prior to the recent advance. Prices and discounts are given on page 1407.

Steel and Iron Bars.—All makers are heavily booked over the remainder of the year and are holding firmly to 2c. base, Pittsburgh, on first quarter tonnages to large buyers, while for small lots they want 2.10c, base. The extra of $2 per ton for screw stock quality bars, it is announced, will be strictly enforced on first quarter business. There has been some irregularity about the application of this extra since it was first adopted, more than two years ago. This charge has been reflected in a new card of extras on cold finished steel bars, issued late last week. There is no change in bar iron prices, but the market is firm with demand increasing. Prices are given on page 1405.

Structural Steel.—On large structural shapes 1.90c., base Pittsburgh, has not disappeared, but mills are not quoting this price on as small tonnages as they did a short time ago. The aim of manufacturers is 2c., base Pittsburgh, as a minimum on large tonnages for next year. Structural business in this immediate district is light. Plain material prices are given on page 1405.

Coke and Coal.—Shutting off of shipments of coke to the East, due to congestions at seaboard terminals, has exacted a further toll on coke prices. Production was accelerated a short time ago in the belief that there would be a permanent outlet for coke throughout the winter in the East and, with that market closed, producers are having difficulty in finding a place for output. In the past few days the ruling market for standard 48-hr. beehive coke has ranged from $5 to $5.50, with the lower figure predominating. A corresponding cut has been necessary to make sales of standard foundry coke, which lately has been sold as low as $6 per net ton at ovens. Some negotiations for first quarter furnace coke are in progress, but no definite business has yet resulted. Producers, in the absence of any real sign of an end of the hard coal strike, regard the present weakness of the market as temporary. There is some unrest among the men in the Connellsville district and, with the H. C. Frick Co. starting up additional ovens, the fear is stronger that independent operators may have to make upward revisions of wage scales. The coal market is fairly active, but prices do not respond because supplies are ample. Prices are given on page 1407.

Old Material.—The past week has not developed much activity or material changes in prices in this market. Steel mills in the Pittsburgh area seem to have covered their immediate requirements and have not lately been interested. But the market has a stronger tone than it had a week ago, because sales of heavy melting steel are reported in the Valley district at $20 to $20.50, and in the East as high as $17.50; these prices would make it difficult to get much scrap of this grade to Pittsburgh at the basis of the last known transaction, which was one of about 30,000 tons at $19.50. Scrap cannot be bought here under that figure and one mill is allowing that price on overshipments, which would indicate at least $20 on the next new purchase of size. There is a stronger market in steel foundry grades, and lower bids by some consumers of the lighter grades do not seem to have weakened the real market.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton	
Heavy melting steel		$19.50
No. 1 cast, cupola size	$18.00 to	18.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	21.00 to	22.00
Compressed sheet steel	18.00 to	18.50
Bundled sheets, sides and ends	17.00 to	17.50
Railroad knuckles and couplers	22.00 to	22.50
Railroad coil and leaf springs	22.00 to	22.50
Low phosphorus blooms and billet ends	24.00 to	24.50
Low phosphorus plates and other material	23.00 to	23.50
Low phosphorus punchings	21.00 to	21.50
Railroad malleable		19.50
Steel car axles	23.50 to	24.00
Cast iron wheels	18.50 to	19.00
Rolled steel wheels	22.00 to	22.50
Machine shop turnings	15.00 to	15.50
Short shoveling turnings		15.50
Sheet bar crops	22.00 to	23.00
Heavy steel axle turnings	17.00 to	17.50
Short mixed borings and turnings		15.50
Heavy breakable cast	18.00 to	18.50
Stove plate	14.50 to	15.00
Cast iron borings	15.00 to	15.50
No. 1 railroad wrought	15.50 to	16.00
No. 2 railroad wrought		19.50

Bethlehem Merger Hearings in Washington

WASHINGTON, Nov. 17.—Hearings in connection with the complaint of the Federal Trade Commission in the Bethlehem Steel Co. merger case were adjourned last Friday but will be resumed here next Monday when evidence will be presented by railroad interests as buyers. Most of the testimony here, begun on Nov. 4, was given by fabricators, who were called to the stand by Attorney B. B. Bane of the commission.

The trend of the testimony would indicate that the commission is continuing its efforts to prove that since the Bethlehem company absorbed several other producers, the market has been restricted for buyers. Witnesses testifying included Frank S. Chavannes, president and treasurer of the Chesapeake Iron Works, fabricator and manufacturer of traveling cranes; Sumner A. Parker, Baltimore, fabricator; John W. Fritz, Baltimore, purchasing agent for the Curtis Copper & Iron Works, Curtis Bay, Md., manufacturer of non-ferrous alloys and specialties, formerly in the steel business; Charles S. Dell, president John J. Greer & Co., Inc., Baltimore, steel jobber. Cross examination was conducted by W. W. Robinson and F. H. Wood, counsel for the Bethlehem company.

Coke Sales Swell Valley Steel Works Earnings

YOUNGSTOWN, Nov. 17.—Valley steel-making interests with their own by-product coke plants are shipping surplus coke to Eastern, Western and Canadian points for domestic and commercial consumption. Because of the anthracite strike by-product plants of producers in this area are working overtime. The heavy sale of coke will be reflected in fourth quarter earnings statements of Valley steel companies.

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rolling, 4-in. and over	$35.00
Rolling, 2-in. and smaller	36.00
Forging, ordinary	40.00
Forging, guaranteed	45.00

Sheet Bars

	Per Gross Ton
Open hearth or Bessemer	$35.00 to $36.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger	$35.00
6 in. x 2 in. and smaller	36.00

Skelp

	Per Lb.
Grooved	1.90c.
Sheared	1.90c.
Universal	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base, No. 5 to ⅜-in.	$45.00
Common soft, coarser than ⅜-in.	$2.50 over base
Screw stock	$5.00 per ton over base
Carbon 0.20 to 0.40	3.00 per ton over base
Carbon 0.41 to 0.55	5.00 per ton over base
Carbon 0.56 to 0.75	7.50 per ton over base
Carbon over 0.75	10.00 per ton over base
Acid	15.00 per ton over base

*Chicago mill base is $46. Cleveland mill base, $45.

Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron	$4.55
Old range non-Bessemer, 51½% iron	4.40
Mesaba Bessemer, 51.50% iron	4.40
Mesaba non-Bessemer, 51.50% iron	4.25
High phosphorus, iron 51.50%	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66% iron	9.50c.
Manganese ore, washed, 51% manganese, from the Caucasus	45c.
Manganese ore, Brazilian or Indian, nominal	42c.
Tungsten ore, high grade, per unit, in 60% concentrates	$12.00 to $13.00
	Per Ton
Chrome ore, Indian basic, 48% Cr_2O_3, crude, c.i.f. Atlantic seaboard	$22.50 to $24.00
	Per Lb.
Molybdenum ore, 85% concentrates of MoS_2, New York	65c. to 70c.

Coke

	Per Net Ton
Furnace, f.o.b. Connellsville prompt	$5.00 to $5.50
Foundry, f.o.b. Connellsville prompt	6.00 to 7.00
Foundry, by-product, Ch'go ovens	10.50
Foundry, by-product, New England, del'd	13.00
Foundry, by-product, Newark, del'd	11.52
Foundry, Birmingham	$5.75 to 6.00
Foundry, by-product, St. Louis	10.00

Coal

	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines	$1.50 to $2.10
Mine run coking coal, f.o.b. W. Pa. mines	2.00 to 2.25
Mine run gas coal, f.o.b. W. Pa. mines	2.00 to 2.25
Steam slack, f.o.b. W. Pa. mines	1.25 to 1.35
Gas slack, f.o.b. W. Pa. mines	1.40 to 1.50

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd	$115.00
Foreign, 80%, Atlantic or Gulf port, duty paid	115.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	$32.00 to $34.00
Domestic, 16 to 19%	31.00 to 33.00

Electric Ferrosilicon

	Per Gross Ton Delivered		*Per Gross Ton Delivered*
50%	$82.50 to $85.00		
75%	145.00 to 147.50		
10%	$42.00	12%	$42.00
11%	42.00	14 to 16%	.$45 to 46.00

Bessemer Ferrosilicon

F.o.b. Jackson County, Ohio, Furnace

	Per Gross Ton		*Per Gross Ton*
10%	$34.00	12%	$38.00
11%	36.00		

Silvery Iron

F.o.b. Jackson County, Ohio, Furnace

	Per Gross Ton		*Per Gross Ton*
6%	$26.50	10%	$32.00
7%	27.50	11%	34.00
8%	28.50	12%	36.00
9%	30.00		

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd	$1.15 to $1.20
Ferrochromium, 4% carbon and up, 60 to 70% Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium, f.o.b. furnace	$3.25 to $4.00
Ferrocarbontitanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads	$200.00
Ferrophosphorus, electrolytic, or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton	$91.00
Ferrophosphorus, electrolytic, 24%, f.o.b. Anniston, Ala., per net ton	$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines	$16.00
No. 2 lump	19.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid.	$16.00 to $17.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines	$32.50

Fire Clay

	Per 1000 f.o.b. Works High Duty	Moderate Duty
Pennsylvania	$43.00 to $46.00	$40.00 to $43.00
Maryland	43.00 to 50.00	43.00 to 45.00
Ohio	43.00 to 46.00	40.00 to 43.00
Kentucky	43.00 to 45.00	40.00 to 43.00
Illinois	43.00 to 45.00	40.00 to 43.00
Missouri	40.00 to 43.00	35.00 to 38.00
Ground fire clay, per ton	6.50 to	7.50

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	$40.00
Chicago	49.00
Birmingham	54.00
Silica clay, per ton	$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.	$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.	40.00

Chrome Brick

	Per Net Ton
Standard size	$48.00

Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads	60 and 10
Machine bolts, all sizes, cut threads	50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads	50, 10 and 10
Carriage bolts, cut threads, all sizes	50 and 10
Eagle carriage bolts	65 and 10
Lag bolts	60, 10 and 10
Plow bolts, Nos. 3 and 7 heads	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, ⅜ x 4 in.,	45, 10 and 5
Larger and longer sizes	45, 10 and 5
Bolt ends with hot-pressed nuts	50, 10 and 10
Bolt ends with cold-pressed nuts	45, 10 and 5
Hot-pressed nuts, blank and tapped, square,	4c. off list
Hot-pressed nuts, blank or tapped, hexagons,	4.40c. off list
C.p.c. and t. square or hex. nuts, blank or tapped	4.10c. off list
Washers*	6.50c. to 6.25c. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent less than above for less than car lots. On hot-pressed and cold-punched nuts the discount is 25c. less per 100 lb. than quoted above for less than car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagon nuts:	
⅝ in. and smaller, U. S. S.	80, 10 and 5
⅝ in. and larger, U. S. S.	75, 10 and 5
Small sizes, S. A. E.	80, 10, 10 and 5
S. A. E., ⅝ in. and larger	75, 10, 10 and 5
Stove bolts in packages	80, 10 and 5
Stove bolts in bulk	80, 10, 5 and 2½
Tire bolts	60 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

(To jobbers and consumers in large quantities)

	Per 100 Net S.A.E.	U.S.S.		Per 100 Net S.A.E.	U.S.S.
¼-in.	$0.44	$0.44	¾-in.	$2.35	$2.40
5/16-in.	0.515	0.515	⅞-in.	3.60	3.60
⅜-in.	0.62	0.66	1-in.	5.65	5.80
7/16-in.	0.79	0.90	1⅛-in.	8.90	8.90
½-in.	1.01	1.05	1¼-in.	12.60	13.10
9/16-in.	1.38	1.42	1⅜-in.	18.35	18.35
⅝-in.	1.70	1.73	1½-in.	21.00	21.00

Larger sizes.—Prices on application.

Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh	$2.60
F.o.b. Cleveland	$2.60 to 2.70
F.o.b. Chicago	2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh	70, 10 and 5
F.o.b. Cleveland	70 and 10 to 70, 10 and 5
F.o.b. Chicago	70, 10 and 10

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws	80 and 10
Milled standard set screws, case hardened	80
Milled headless set screws, cut thread	80
Upset hex. head cap screws, U. S. S. thread,	80, 10 and 10
Upset hex. cap screws, S. A. E. thread,	80 and 10
Upset set screws	80, 10 and 10 to 80, 10 and 25
Milled studs	70 and 5

Chicago

Heavy Car and Rail Orders — Canadian Pig Iron Reaches Illinois Boundary

CHICAGO, Nov. 17.—Railroad cars placed during the week require a total of 80,000 tons of plates, shapes and bars. Outstanding among these equipment orders were 4500 cars for the New York Central, 3000 for the Missouri Pacific and 250 for the Denver & Rio Grande Western. The Santa Fe expects to close for 3000 cars within the next few days and the Wabash has increased its recent inquiry by 1000 cars. The Rock Island is understood to have provided for new car construction in its 1926 budget and the Burlington may soon enter the market.

The local market for plates, shapes and bars continues strong and bookings are well in excess of shipments. Petroleum refiners are inquiring freely for oil storage tanks, the amount of this work pending totaling not less than 20,000 tons. Mill operations for the week are unchanged, with the leading interest producing at 84 to 85 per cent of ingot capacity and the foremost independent at about 82 per cent.

Recent rail distributions show that Chicago mills have taken an additional 42,000 tons. Two more Western railroads, terminating at Chicago, will take figures on 19,000 tons. The Chesapeake & Ohio has placed 6000 tons of tie plates with a local mill and the New York Central is now said to be inquiring for 15,000 kegs of track bolts.

November pig iron shipments are in excess of those for the corresponding period in October and furnaces are said to be making deliveries close to schedule.

Pig Iron.—Prices of Northern foundry, malleable and high phosphorus pig iron are unchanged both for immediate shipment and future delivery. A few users whose requirements call for pig iron of special analysis, usually high in silicon, are said to have paid a premium of from 50c. to $1 a ton. Canadian iron is penetrating well into the middle of Michigan, although in many instances melters are taking it at an advance of 25c. to 30c. a ton above the market, either on account of delivery or special analysis requirements. One thousand tons of Canadian iron of high silicon content was sold near the northern Illinois boundary at $23, base Chicago. November shipments are running well ahead of the average for October and furnaces are apparently meeting delivery schedules without great difficulty. November production will benefit by the addition of a merchant stack which was blown in during the third week in October. There is still no evidence that foundries are building up stocks, and furnace stocks are said to be at a very low point. Local sellers deny that any further water shipments of pig iron via the Great Lakes are contemplated at this time. The one recent shipment of 6000 tons was on contract and was distributed as unloaded. Charcoal, Southern and silvery iron are comparatively inactive and prices are unchanged.

Quotations on Northern foundry, high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	$23.00
Northern No. 1 foundry, sil. 2.25 to 2.75	23.50
Malleable, not over 2.25 sil.	23.00
High phosphorus	23.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	$26.01 to 27.01
Southern No. 2 (barge and rail)	25.18
Low phos., sil. 1 to 2 per cent, copper free	31.20 to 31.60
Silvery, sil. 8 per cent	34.29
Ferrosilicon, 14 to 16 per cent	45.25 to 45.75

Ferroalloys.—Fifty per cent ferrosilicon is stronger and sellers are rapidly closing contracts for 1926 delivery at $85, delivered. This represents an advance of $2.50 over the contract price for delivery this year. Ferromanganese and spiegeleisen are unchanged in a quiet market.

We quote 80 per cent ferromanganese, $122.56, delivered; 50 per cent ferrosilicon, $85, delivered; spiegeleisen, 18 to 22 per cent, $41.76, delivered.

Plates.—Local mills expect to book a large share of the 80,000 tons of bars, plates and shapes required for approximately 8000 cars placed during the week. The outstanding order was that of the New York Central for 4500 cars, the distribution of which is shown elsewhere in this issue. The Missouri Pacific placed 3000 cars of various types and the Denver & Rio Grande Western 250 automobile cars. Outstanding inquiries include 3000 cars for the Santa Fe and an additional 1000, or a total of 2000 cars, for the Wabash. Included in the 20,000 tons of tank steel now before the trade, are large tonnages for the Standard Oil Co. at Casper, Wyo., and for Cosden & Co. at Tulsa, Okla. Midwest fabricators have closed for tanks to be erected at New Orleans, which will require 3000 tons of plates. Plates are firm at 2.10c., Chicago.

The mill quotation is 2.10c., Chicago. Jobbers quote 3.10c. for plates out of stock.

Bars.—Demand remains active and specifications are still running ahead of shipments. Deliveries on soft steel bars range from three to four weeks in some sizes, up to seven and even eight weeks on the smaller sizes. Soft steel bars are unchanged at 2.10c., Chicago. Bookings of rail steel bars are said to be heavier than during the corresponding period of October. Users are specifying more freely with the exception of fence post manufacturers, who are experiencing a seasonal slump in business. Rail steel bars still range from 2c. to 2.10c., Chicago, with one seller quoting the latter figure as a minimum. There is a decided increase in demand for bar iron and both new business and specifications are more liberal. It is now quoted at 1.95c. to 2c., Chicago, 1.90c. having disappeared as a going price.

Mill prices are: Mild steel bars, 2.10c.; common bar iron, 1.95c. to 2c., Chicago; rail steel bars, 2c. to 2.10c., Chicago.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotation on cold-rolled steel bars and shafting are 3.60c. for rounds and hexagons and 4.10c. for flats and squares; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.60c.

Wire Products.—Mill operations remain at 65 to 70 per cent and are just keeping pace with shipments. Although prices have not changed, they are steadier and shading appears to have disappeared. Specifications and new buying thus far in November have been slightly heavier than the average for October. Barbed wire and woven wire fence are more active and contracts now being placed call for delivery during the late winter and early spring months. Mill prices, which are unchanged, are shown on page 1405.

We quote warehouse prices f.o.b. Chicago: No. 8 black annealed wire, $3.05 per 100 lb.; common wire nails, $3.05 per keg; cement-coated nails, $2.05 to $2.20.

Rails and Track Supplies.—Twenty thousand rails remaining in the Santa Fe inquiry for 94,000 tons has been distributed, 10,000 tons each being placed with the Illinois Steel Co. and the Inland Steel Co. The Baltimore & Ohio rail tonnage is reported allocated as follows: 35,000 tons to the Bethlehem Steel Co.; 38,000 tons to the Carnegie Steel Co.; 7000 tons to the Illinois Steel Co. and 5000 tons to the Inland Steel Co. The Missouri Pacific has placed 20,000 tons with the Tennessee, Coal, Iron & Railroad Co., 10,000 tons with the Colorado Fuel & Iron Co., 7000 tons with the Illinois Steel Co. and the 3000 tons with the Inland Steel Co. Ten thousand nine hundred tons remaining on the Cotton Belt inquiry has been taken by the Tennessee company. The Grand Trunk will take bids on 7000 tons of rails and the Pere Marquette has inquired for 12,000 tons. The St. Louis-San Francisco has entered the market for about 30,000 tons of 90 and 100-lb. rails. The New York Central has added 15,000 kegs of bolts to its track fastening inquiry and the Missouri Pacific wants 5000 tons of tie plates. A local producer will roll 6000 tons of tie plates for the Chesapeake & Ohio, this being about half of the immediate requirements of that railroad.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, 1.80c. to 1.90c., f.o.b. maker's mill.

Standard railroad spikes, 2.90c. to 3c. mill; track bolts with square nuts, 3.90c. to 4c. mill; steel tie plates, 2.25c. to 2.35c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.55c., base, and track bolts, 4.55c., base.

Sheets.—The situation has changed very little during the week and prices are steady at the recent advances. Mills continue to operate at a high rate and demand is insistent. Independent makers are said to be quoting 2.60c. base for blue annealed, 4.70c. for galvanized and 3.45c. for box annealed, f.o.b. Chicago district mills.

Chicago delivered prices from mill, 3.40c. for No. 28 black, 2.55c. for No. 10 blue annealed and 4.65c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.50c. base for blue annealed, 4.10c. base for black, and 5.25c. base for galvanized.

Structural Material.—Structural awards and inquiries during the week were not numerous and some fabricators are of the impression that the market has entered a seasonal condition which may last for several weeks. Architects, as a rule, are busy and the trade expects a number of good-sized projects to be released by the middle of December, so that construction may be started early in the spring. Outstanding awards for the week are 1125 tons for an office building in New Orleans and 1000 tons for a bridge near Houston, Tex. A power plant at Niles Center, Ill., will require 1500 tons. Plain material is unchanged at 2.10c., Chicago.

The mill quotation on plain material is 2.10c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Bolts, Nuts and Rivets.—Specifications have been slightly more liberal during the week and makers expect to open books for first quarter within the next few weeks. Several producers report that operations have been increased somewhat since the first of the month. Prices are steady and are shown on page 1407.

Jobbers quote structural rivets, 3.50c.; boiler rivets, 3.70c.; machine bolts up to ⅞ x 4 in., 50 and 5 per cent off; larger sizes, 50 and 5 off; carriage bolts up to ⅞ x 4 in., 47½ off; larger sizes, 47½ off; hot-pressed nuts, square, tapped or blank, $3.25 off; hot-pressed nuts, hexagon, tapped or blank, $3.75 off; coach or lag screws, 50 and 5 per cent off.

Cast Iron Pipe.—The local market remains unchanged with prices steady at $42, base Birmingham, for 6-in. and larger pipe. Contracting is still fairly liberal and makers have not yet announced prices for winter manufacture and delivery. Chicago will open bids Nov. 27 on 2325 tons of 6, 8 and 12-in. Class B pipe and Detroit is reported in the market for 17,000 tons, on which bids will be closed Nov. 23. The United States Cast Iron Pipe & Foundry Co. has taken 300 tons of 6 and 8-in. Class B and 12-in. Class C for Melvindale, Mich. James B. Clow & Sons have booked 170 tons of 6-in. Class B for Summit, Ill.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., $54.20; 6-in. and over, $50.20; Class A and gas pipe, $4 extra.

Coke.—By-product foundry coke is unchanged at $10.50, f.o.b. Chicago ovens, or $11, delivered in the Chicago switching district.

Reinforcing Bars.—Awards have shown a further tendency to recede, this being particularly true of heavy tonnage projects. Considerable interest is centering in 1200 tons required in the construction of a three-deck stadium for Northwestern University, Evanston, Ill., which, however, has been delayed because the structure, as designed, exceeds in height present limitations imposed by the Evanston zoning laws. The outstanding letting of the week was 2000 tons for Grant Park Stadium, Chicago. Warehouses will be busy for some time shipping on contracts already booked. Warehouse prices on billet steel reinforcing bars are unchanged at 2.60c., Chicago. Lettings include:

Apartment Building, 1320 North State Street, Chicago, 600 tons to the American System of Reinforcing.

Anchor Hospital, St. Paul, Minn., 100 tons to the American System of Reinforcing.

Kohler Co., Kohler, Wis., 350 tons for a brass foundry to Concrete Engineering Co.

Elementary public school, 112th and Bishop Streets, Chicago, 150 tons to Joseph T. Ryerson & Son.

Saginaw Products Co., Saginaw, Mich., 100 tons rail steel to Calumet Steel Co.

Northern States Life Building, Chicago, 100 tons to the Concrete Steel Co.

South Park Board, Chicago, addition to Grant Park Stadium, 2000 tons to the Olney J. Dean & Co.

Pending work includes:

Wolford Hotel, Danville, Ill., 400 tons; general contract awarded to Yeager & Co., Danville, Ill.

Henry Apartments, Sheridan Road, Chicago, 500 tons; general contract awarded to H. J. McLennan Co.

Stadium, Northwestern University, Evanston, Ill., 1200 tons.

Power house, Sanitary District, Niles Center, Ill., 600 tons.

McCormick Road Bridge, Niles Center, Ill., 140 tons; general contract for sub-structure awarded to M. E. White Co.

Fairfax Hotel, Dorchester and Hyde Park Boulevard, Chicago, 250 tons. J. A. Nyden, architect.

John Evans Apartment Hotel, Evanston, Ill., 145 tons.

Old Material.—The underlying situation in the scrap market appears to be steady and prices are about the same as last week. Local mills have taken a few thousand tons of heavy melting steel at $16.50. Trading for the most part is in carload lots and is confined largely to distress tonnage of which there still seems to be a liberal supply. Specialties have been comparatively quiet and in some instances dealers are placing small tonnages in their yards rather than sell at current prices. Reports vary as to the activity of jobbing foundries, but indications are that they are no busier than during the first week of the month. The outstanding railroad list of the week is that of the Rock Island, which totals 7000 tons.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

	Per Gross Ton	
Iron rails	$18.50 to	$19.00
Cast iron car wheels	18.50 to	19.00
Relaying rails, 56 lb. to 60 lb.	25.00 to	26.00
Relaying rails, 65 lb. and heavier	26.00 to	31.00
Forged steel car wheels	20.00 to	20.50
Railroad tires, charging box size	19.50 to	20.00
Railroad leaf springs, cut apart	19.75 to	20.25
Rails for rolling	19.50 to	20.00
Steel rails, less than 3 ft.	19.75 to	20.25
Heavy melting steel	16.00 to	16.50
Frogs, switches and guards, cut apart	18.50 to	19.00
Shoveling steel	16.00 to	16.25
Drop forge flashings	12.00 to	12.50
Hydraulic compressed sheets	14.50 to	15.00
Axle turnings	14.50 to	15.00
Steel angle bars	19.50 to	20.00
Steel knuckles and couplers	18.75 to	19.25
Coil springs	20.00 to	20.50
Low phos. punchings	18.00 to	18.50
Machine shop turnings	10.00 to	10.50
Cast borings	13.25 to	13.75
Short shoveling turnings	13.25 to	13.75
Railroad malleable	19.50 to	20.00
Agricultural malleable	18.00 to	18.50
	Per Net Ton	
Iron angle and splice bars	18.25 to	18.75
Iron arch bars and transoms	21.50 to	22.00
Iron car axles	27.00 to	27.50
Steel car axles	18.00 to	18.50
No. 1 busheling	13.00 to	13.50
No. 2 busheling	9.75 to	10.25
Pipes and flues	11.00 to	11.50
No. 1 railroad wrought	15.75 to	16.25
No. 2 railroad wrought	14.50 to	14.75
No. 1 machinery cast	18.25 to	18.75
No. 1 railroad cast	17.50 to	18.00
No. 1 agricultural cast	17.25 to	17.75
Locomotive tires, smooth	16.50 to	17.00
Stove plate	15.50 to	16.00
Grate bars	15.50 to	16.00
Brake shoes	14.75 to	15.25

October Shipments of Independent Sheet Makers Gain

PITTSBURGH, Nov. 17.—The monthly report of the National Association of Sheet and Tin Plate Manufacturers for October makes the following comparison with the two previous months and the corresponding month last year as follows:

	October, 1925	September, 1925	August, 1925	October, 1924
Sales in tons	403,491	286,029	239,492	221,773
Production, tons	348,714	295,810	270,212	247,282
Shipments, tons	332,211	262,050	243,204	229,771

San Francisco

Foreign Pig Iron Advances 50c. to $1—Oakland Harbor Work Authorized

SAN FRANCISCO, Nov. 14 (*By Air Mail*).—Reports of higher quotations in the Eastern markets have tended to strengthen prices locally but, with the single exception of European pig iron, there has been no definite price change during the past week. European pig iron has been advanced 50c. to $1 a ton by most of the local importers.

In contrast with a fair volume of inquiry and buying a week ago, the past six days have been relatively quiet. Fresh inquiries have been few in number, and the amount of business placed has been small. Armistice day was observed locally as a holiday by all of the banks and many of the business houses, which may have retarded to some extent the development of new demand. A referendum in Oakland, Cal., Nov. 10, resulted in $9,960,000 worth of bonds being voted for the construction of the first unit of that city's harbor development. Plans call for a variety of miscellaneous equipment and materials, and for the construction of piers, transit sheds, trackage and a warehouse and cold storage plant. The work will be in charge of W. W. Harmon, city engineer.

Pig Iron.—Local importers are quoting English, Belgian, Dutch and German foundry irons at 50c. to $1 a ton higher than a week ago. Quotations on Indian foundry have not been advanced, and the price of Utah iron, although firmer, remains unchanged. Buying is confined to small tonnages, and no fresh inquiries of importance have appeared.

*Utah basic	$27.00 to $28.00
*Utah foundry, sil. 1.75 to 2.25	27.00 to 28.00
**English foundry	26.00
**Belgian foundry	24.50 to 25.00
**Dutch foundry	24.00
**Indian foundry	24.00 to 25.00
**German foundry	25.00

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—For the first week in several months no lettings of over 100 tons are known to have been placed, and no fresh inquiries of interest have come into the market. However, a number of good-sized jobs are pending and are expected to be closed during the coming week. Prices are steady at 2.30c. to 2.35c., c.i.f. Coast ports. Reports of stronger quotations in the Eastern markets have tended to make local prices firmer.

Plates.—Most of the Eastern mills continue to quote 2.25c. to 2.30c., c.i.f. Coast ports, and there is a growing belief among buyers that firmer quotations are to be expected before long. The Llewellyn Iron Works have been awarded 150 tons of plates and 250 tons of boiler tubes for Unit No. 1 of the Los Angeles municipal steam power plant. The city of Everett, Wash., will close bids Dec. 1 for about 600 tons of plates, and the Western Water Co., Los Angeles, is inquiring for about 300 tons.

Bars.—Most of the local reinforcing bar jobbers are now quoting concrete bars at 2.95c., base, on 250-ton lots, 3.10c., base, on carload lots, and 3.40c., base in less than carload lots. Price shading seems to have disappeared for the most part, although a number of buyers are of the opinion that considerably less than 2.95c. is still possible on 250-ton lots. A carload, however, is understood to have been sold by a local jobber during the past week at 3.20c. On soft steel bars Eastern mills continue to quote 2.35c., c.i.f. Coast ports, and local mills quote 2.40c. to 2.50c., f.o.b. cars San Francisco. Only three reinforcing bar jobs calling for over 100 tons are known to have been placed during the week, namely, 110 tons for a Bank of Italy building, Fresno, Cal., which was awarded to an unnamed San Francisco jobber, 100 tons for a Y. W. C. A. in San Jose, Cal., taken by the W. S. Wetenhall Co., and 450 tons for the Royal Hawaiian Hotel, Honolulu, placed with the Honolulu Iron Works.

Cast Iron Pipe.—The city of Paso Robles, Cal., has awarded 218 tons of cast iron pipe for special work to J. F. Shepardson, Bakersfield, Cal. No other lettings are known to have been closed. Prices are unchanged at $50 to $52.50, c.i.f. San Francisco.

Sheets.—Interest seems to have fallen off somewhat since the recent advances. Most of the local buyers apparently covered their requirements before the higher quotations were put into effect, and as a result there is comparatively little buying at present. Quotations are as follows: Blue annealed sheets, 2.40c., base Pittsburgh; black sheets, 3.25c., base Pittsburgh; and galvanized sheets, 4.50c., base Pittsburgh.

Warehouse Business.—Jobbers report a slight increase in the number of orders, which, however, are still individually small. Prices are firm but unchanged.

Merchant bars, $3.30 base, per 100 lb.; merchant bars, ⅝ in. and under, rounds, squares and flats, $3.80 base, per 100 lb.; soft steel bands, $4.15 base, per 100 lb.; angles, ¼ in. and larger x 1½ in. to 2¾ in., inc., $3.30 base, per 100 lb.; channels and tees, ¾ in. to 2¾ in., inc., $3.90 base, per 100 lb.; angles, beams and channels, 3 in. and larger, $3.30 base, per 100 lb.; tees, 3 in. and larger, $3.30 base, per 100 lb.; universal mill plates, ¼ in. and heavier, stock lengths, $3.30 base, per 100 lb.; spring steel, ¼ in. and thicker, $6.30 base, per 100 lb.; wire nails, $3.50 base, per 100 lb.; cement coated nails, $3 base, per 100 lb.; No. 10 blue annealed sheets, $3.75 per 100 lb.; No. 28 galvanized sheets, $6 per 100 lb.; No. 28 black sheets, $4.75 per 100 lb.

Coke.—Prices are firm but unchanged, and buying is confined principally to small lots. Local importers quote as follows:

English beehive, $15 to $16 at incoming dock, and English by-product, $12 to $14; German by-product, $11.50 to $12.

Boston

Purchase of 35,000 Tons of German Coke—Pig Iron Sales Slightly Larger

BOSTON, Nov. 17.—Pig iron sales the past week were slightly larger, but in practically all instances represented piecing-out orders or more or less special analysis iron for specific mixture purposes. The most important exception was a sale of 1000 tons of Indian iron in three grades, 2.25 to 2.50 per cent silicon and higher, at $23 on dock duty paid, for the No. 2X and $23.50 for the higher silicon grades. The delivered price on this iron is approximately $2 a ton under the delivered base on Buffalo iron. The extreme range of prices on foreign iron is now $22.50 to $24 on dock duty paid, German iron being quoted at $22.50, an advance of $1 a ton, Indian at $23 to $23.50, and Dutch at $23.50 to $24. Buffalo producers selling in this territory are now on a $22 furnace base, or $26.91 delivered. Western Pennsylvania iron is on the same delivered base as Buffalo iron. So far as can be ascertained no eastern Pennsylvania or Virginia furnaces are offering iron in New England. There is an actual shortage of Alabama iron for 1925 shipment and comparatively little for first quarter. The General Fire Extinguisher Co., Providence, R. I., is inquiring for 200 tons high manganese iron, the largest open business in the market.

We quote delivered prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$25.65
East. Penn., sil. 2.25 to 2.75	26.15
Buffalo, sil. 1.75 to 2.25	$25.91 to 26.91
Buffalo, sil. 2.25 to 2.75	26.41 to 27.41
Virginia, sil. 1.75 to 2.25	29.92
Virginia, sil. 2.25 to 2.75	30.42
Alabama, sil. 1.75 to 2.25	30.60
Alabama, sil. 2.25 to 2.75	31.10

Cast Iron Pipe.—Providence, R. I., has awarded 500 to 600 tons of 6-in. to 24-in. pipe to the United States Cast Iron Pipe & Foundry Co., while Manchester, N. H., has awarded 400 tons of 8-in. to 24-in. pipe to the Donaldson Iron Co. In both instances foreign producers underbid domestic foundries. The price situation appears to be tightening, although no actual advances are noted. Foundries are not making concessions even on winter shipments, which is customary at

this time of the year. Their action is interpreted by the trade as an indication of higher quotations within the near future. Prices quoted openly on domestic cast iron pipe follow: 4-in., $60.10 per net ton, delivered at Boston common freight rate points; 6-in. to 16-in., $56.10; 20-in. and larger, $55.10.

Coke.—The weakening of coke prices in the Connellsville district is not reflected in this market. Both the New England Coal & Coke Co. and the Providence Gas Co. continue to quote by-product foundry coke at $13 a ton, delivered within a $3.10 freight rate zone, and are confining shipments against contract specifications to actual needs of foundries, so great is the demand on them for domestic fuel. Foreign coke has invaded New England, as it did during the last anthracite strike. Last week the Providence Gas Co. received 3100 tons of Newcastle-on-Tyne domestic coke, and Portland, Me., is reported to have had a cargo of English coke. A Boston coal dealer has contracted for seven 5000-ton lots of Westphalian coke running from 0.1 to 0.15 per cent sulphur. The initial lot will be landed in Boston and will be the first German coke to enter New England this year. The destination of the other lots is problematical, as the contractor has the right to divert cargoes to any Atlantic port.

Old Material.—Business in old material holds up well. Worcester, Mass., and a Phillipsdale, R. I., mills took additional lots of heavy melting steel the past week, their purchases being estimated at 1000 tons each. For such shipments dealers continue to pay $12.50 to $12.75 on cars, but for Pennsylvania shipment the market is perhaps 25c. a ton higher, at $13.25 to $13.75, on cars. Machine shop turnings and rolling mill borings are about 25c. a ton higher, while chemical borings are 50c. higher. Recent sales of chemical borings include 200 tons at $12.50, on cars. For mixed borings and turnings, $9 to $9.50 is the general range of prices, although a Springfield, Mass., shop claims to have obtained $9.75, on cars, for a round tonnage. For long bundles of cotton ties $10, on cars, seems to be the average top price, although $10.25 has been paid within a day or so. Wrought material is a drug on the market. A little railroad malleable is bringing $19.50 to $20, delivered in Connecticut, and a few lots of stove plate $14.50 to $15, delivered Bridgeport, Conn. The local market for machinery cast is quiet.

The following prices are for gross ton lots delivered consuming points:

Textile cast	$20.00 to $20.50
No. 1 machinery cast	19.50 to 20.00
No. 2 machinery cast	15.50 to 16.50
Stove plate	14.50 to 15.00
Railroad malleable	19.50 to 20.00

The following prices are offered per gross ton lots f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$13.25 to $13.75
No. 1 railroad wrought	13.50 to 14.00
No. 1 yard wrought	12.50 to 13.00
Wrought pipe (1 in. in diameter, over 2 ft. long)	12.00 to 12.50
Machine shop turnings	10.00 to 10.25
Cast iron borings, chemical	12.00 to 12.50
Cast iron borings, rolling mill	10.00 to 10.25
Blast furnace borings and turnings	9.00 to 9.50
Forged scrap	10.00 to 10.50
Bundled skeleton, long	10.00 to 10.50
Forged flashings	10.00 to 10.50
Bundled cotton ties, long	10.00 to 10.25
Bundled cotton ties, short	10.00 to 10.50
Shaftings	18.50 to 19.00
Street car axles	18.00 to 18.50
Rails for rerolling	13.00 to 13.50
Scrap rails	12.50 to 13.00

Buffalo

Pig Iron Demand Declines—Purchase of 20,000 Tons of Heavy Melting Steel

BUFFALO, Nov. 17.—Inquiry was somewhat lighter during the past week, but furnaces are well satisfied with their order books. Several of them are well sold into the first quarter and at least one interest has little iron left for that delivery. Pending inquiry for delivery in territory naturally served by Buffalo furnaces does not exceed 7000 tons. This is exclusive of 5000 to 6000 tons for the Saginaw Products Co. which will not be placed this far East. The American Radiator Co. is understood to have closed for the odd-lot tonnage it wanted for Buffalo and Titusville, Pa., 3850 tons in all. One producer has advanced quotations for prompt shipment to $22, base, with 50c. extra for No. 2X and $1.50 for No. 1. The going price for prompt and first quarter shipment is $21 with full differentials.

We quote prices f.o.b. gross ton, Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25	$21.00 to $22.00
No. 2X foundry, sil. 2.25 to 2.75	21.50 to 22.50
No. 1 foundry, sil. 2.75 to 3.25	22.50 to 23.50
Malleable, sil. up to 2.25	21.00 to 22.00
Basic	20.50
Lake Superior charcoal	29.28

Finished Iron and Steel.—Bars are firm and the current price is 2.365c., delivered Buffalo. Sheet business is good with prices firm at 3.30c., Pittsburgh, for black, 4.50c. for galvanized and 4.40c. for automobile sheets. Most sheet makers are booked through the next three months. Wire business is good in all lines and nuts and bolts are active. Warehouse business continues to improve.

Warehouse prices are being quoted as follows: Steel bars, 3.25c.; steel shapes, 3.35c.; steel plates, 3.35c.; No. 10 blue annealed sheets, 3.80c.; No. 28 black sheets, 4.75c.; No. 28 galvanized, 5.45c.; cold rolled shapes, 4.40c.; cold rolled rounds, 3.95c.; wire nails, 4c.; black wire, 4.05c.

Old Material.—The last large purchase of scrap here was during the week just past when a mill obtained 20,000 tons of heavy melting steel of strictly No. 1 grade at $19.50. This increases the total purchases of heavy melting steel in the past three weeks to 75,000 tons. Another mill is paying $18 for No. 2 steel. Most of the No. 1 grade has now been taken out of this market. Mills are growing busier and the outside markets are very strong, though not quite so active as here. Cleveland and Canton, Ohio, have released hold-up orders on machine shop turnings and cast iron borings. Turnings are bringing $13.50 and borings $13.50. Stocks in dealers' yards are not very large and the market is strong.

We quote prices f.o.b. gross ton, Buffalo, as follows:

Heavy melting steel	$19.00 to $19.50
Low phosphorus	20.50 to 21.50
No. 1 railroad wrought	16.50 to 17.00
Car wheels	17.50 to 18.00
Machine shop turnings	12.50 to 13.50
Cast iron borings	13.00 to 13.50
No. 1 busheling	17.50 to 18.00
Stove plate	15.00
Grate bars	14.50 to 15.00
Hand bundled sheets	13.00 to 13.50
Hydraulic compressed	16.50 to 17.50
No. 1 machinery cast	17.50 to 18.00
Railroad malleable	20.00 to 21.00
No. 1 cast scrap	17.00 to 17.50
Iron axles	26.00 to 27.00
Steel axles	20.00 to 21.00

Cincinnati

Silvery Advances $2 for First Quarter —Coke and Pig Iron Less Active

CINCINNATI, Nov. 17.—Although pig iron sales for the week totaled less than 10,000 tons for the first time since early in October, the market remains strong. The majority of consumers have covered their first quarter requirements and furnaces are so well fortified with commitments that only a few producers are actively soliciting business. One Ironton maker has temporarily withdrawn from the market, while the other furnace is holding rigidly to $21, base Ironton. Only two producers in Alabama have any iron to offer and they are asking $21 to $22, base Birmingham. Tennessee iron is moving more freely at $20, base Birmingham. Jackson County silvery iron furnaces are well sold through the remainder of the year and are securing $2 above the present schedule for first quarter orders. In several instances low grades of silvery for spot shipment have been sold at 50c. more than the prevailing prices. The largest sale of the week was 2000 tons of Southern iron to a melter in this territory. Other sizable orders included 800 tons of Northern foundry and malleable grades for a northern Ohio consumer and 500 tons of Northern foundry for another Ohio melter. The Saginaw Products Co., Saginaw, Mich, is reported to be inquiring for 5000 tons of foundry iron, while a Fort Wayne, Ind., manufacturer is in the market for

San Francisco

Foreign Pig Iron Advances 50c. to $1—Oakland Harbor Work Authorized

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In contrast with a fair volume of inquiry and buying a week ago, the past six days have been relatively quiet. Fresh inquiries have been few in number, and the amount of business placed has been small. Armistice day was observed locally as a holiday by all of the banks and many of the business houses, which may have retarded to some extent the development of new demand. A referendum in Oakland, Cal., Nov. 10, resulted in $9,960,000 worth of bonds being voted for the construction of the first unit of that city's harbor development. Plans call for a variety of miscellaneous equipment and materials, and for the construction of piers, transit sheds, trackage and a warehouse and cold storage plant. The work will be in charge of W. W. Harmon, city engineer.

Pig Iron.—Local importers are quoting English, Belgian, Dutch and German foundry irons at 50c. to $1 a ton higher than a week ago. Quotations on Indian foundry have not been advanced, and the price of Utah iron, although firmer, remains unchanged. Buying is confined to small tonnages, and no fresh inquiries of importance have appeared.

*Utah basic	$27.00 to $28.00
*Utah foundry, sil. 1.75 to 2.25	27.00 to 28.00
**English foundry	26.00
**Belgian foundry	24.50 to 25.00
**Dutch foundry	24.00
**Indian foundry	24.00 to 25.00
**German foundry	25.00

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—For the first week in several months no lettings of over 100 tons are known to have been placed, and no fresh inquiries of interest have come into the market. However, a number of good-sized jobs are pending and are expected to be closed during the coming week. Prices are steady at 2.30c. to 2.35c., c.i.f. Coast ports. Reports of stronger quotations in the Eastern markets have tended to make local prices firmer.

Plates.—Most of the Eastern mills continue to quote 2.25c. to 2.30c., c.i.f. Coast ports, and there is a growing belief among buyers that firmer quotations are to be expected before long. The Llewellyn Iron Works have been awarded 150 tons of plates and 250 tons of boiler tubes for Unit No. 1 of the Los Angeles municipal steam power plant. The city of Everett, Wash., will close bids Dec. 1 for about 600 tons of plates, and the Western Water Co., Los Angeles, is inquiring for about 300 tons.

Bars.—Most of the local reinforcing bar jobbers are now quoting concrete bars at 2.95c., base, on 250-ton lots, 3.10c., base, on carload lots, and 3.40c., base in less than carload lots. Price shading seems to have disappeared for the most part, although a number of buyers are of the opinion that considerably less than 2.95c. is still possible on 250-ton lots. A carload, however, is understood to have been sold by a local jobber during the past week at 3.20c. On soft steel bars Eastern mills continue to quote 2.35c., c.i.f. Coast ports, and [illegible] Only three reinforcing bar jobs calling for over 100 tons are known to have been placed during the week, namely, 110 tons for a Bank of Italy building, Fresno, Cal., which was awarded to an unnamed San Francisco jobber, 100 tons for a Y. W. C. A. in San Jose, Cal., taken by the W. S. Wetenhall Co., and 450 tons for the Royal Hawaiian Hotel, Honolulu, placed with the Honolulu Iron Works.

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Warehouse Business.—Jobbers report a slight increase in the number of orders, which, however, are still individually small. Prices are firm but unchanged.

Merchant bars, $3.30 base, per 100 lb.; merchant bars, ⅝ in. and under, rounds, squares and flats, $3.80 base, per 100 lb.; soft steel bands, $4.15 base, per 100 lb.; angles, ½ in. and larger x 1½ in. to 2¾ in., inc., $3.30 base, per 100 lb.; channels and tees, ¾ in. to 2¾ in., inc., $3.90 base, per 100 lb.; angles, beams and channels, 3 in. and larger, $3.30 base, per 100 lb.; tees, 3 in. and larger, $3.30 base, per 100 lb.; universal mill plates, ¼ in. and heavier, stock lengths, $3.30 base, per 100 lb.; spring steel, ¼ in. and thicker, $6.30 base, per 100 lb.; wire nails, $3.50 base, per 100 lb.; cement coated nails, $3 base, per 100 lb.; No. 10 blue annealed sheets, $3.75 per 100 lb.; No. 28 galvanized sheets, $6 per 100 lb.; No. 28 black sheets, $4.75 per 100 lb.

Coke.—Prices are firm but unchanged, and buying is confined principally to small lots. Local importers quote as follows:

English beehive, $15 to $16 at incoming dock, and English by-product, $12 to $14; German by-product, $11.50 to $12.

Boston

Purchase of 35,000 Tons of German Coke—Pig Iron Sales Slightly Larger

BOSTON, Nov. 17.—Pig iron sales the past week were slightly larger, but in practically all instances represented piecing-out orders or more or less special analysis iron for specific mixture purposes. The most important exception was a sale of 1000 tons of Indian iron in three grades, 2.25 to 2.50 per cent silicon and higher, at $23 on dock duty paid, for the No. 2X and $23.50 for the higher silicon grades. The delivered price on this iron is approximately $2 a ton under the delivered base on Buffalo iron. The extreme range of prices on foreign iron is now $22.50 to $24 on dock duty paid, German iron being quoted at $22.50, an advance of $1 a ton, Indian at $23 to $23.50, and Dutch at $23.50 to $24. Buffalo producers selling in this territory are now on a $22 furnace base, or $26.91 delivered. Western Pennsylvania iron is on the same delivered base as Buffalo iron. So far as can be ascertained no eastern Pennsylvania or Virginia furnaces are offering iron in New England. There is an actual shortage of Alabama iron for 1925 shipment and comparatively little for first quarter. The General Fire Extinguisher Co., Providence, R. I., is inquiring for 200 tons high manganese iron, the largest open business in the market.

We quote delivered prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$25.65
East. Penn., sil. 2.25 to 2.75	26.15
Buffalo, sil. 1.75 to 2.25	$25.91 to 26.91
Buffalo, sil. 2.25 to 2.75	26.41 to 27.41
Virginia, sil. 1.75 to 2.25	29.92
Virginia, sil. 2.25 to 2.75	30.42
Alabama, sil. 1.75 to 2.25	34.60
Alabama, sil. 2.25 to 2.75	35.10

Cast Iron Pipe.—Providence, R. I., has awarded 500 to 600 tons of 6-in. to 24-in. pipe to the United States Cast Iron Pipe & Foundry Co., while Manchester, N. H., has awarded 400 tons of 8-in. to 24-in. pipe to the Donaldson Iron Co. In both instances foreign producers underbid domestic foundries. The price situation appears to be tightening, although no actual advances are noted. Foundries are not making concessions even on winter shipments, which is customary at

this time of the year. Their action is interpreted by the trade as an indication of higher quotations within the near future. Prices quoted openly on domestic cast iron pipe follow: 4-in., $60.10 per net ton, delivered at Boston common freight rate points; 6-in. to 16-in., $56.10; 20-in. and larger, $55.10.

Coke.—The weakening of coke prices in the Connellsville district is not reflected in this market. Both the New England Coal & Coke Co. and the Providence Gas Co. continue to quote by-product foundry coke at $13 a ton, delivered within a $3.10 freight rate zone, and are confining shipments against contract specifications to actual needs of foundries, so great is the demand on them for domestic fuel. Foreign coke has invaded New England, as it did during the last anthracite strike. Last week the Providence Gas Co. received 3100 tons of Newcastle-on-Tyne domestic coke, and Portland, Me., is reported to have had a cargo of English coke. A Boston coal dealer has contracted for seven 5000-ton lots of Westphalian coke running from 0.1 to 0.15 per cent sulphur. The initial lot will be landed in Boston and will be the first German coke to enter New England this year. The destination of the other lots is problematical, as the contractor has the right to divert cargoes to any Atlantic port.

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The following prices are for gross ton lots delivered consuming points:

Textile cast	$20.00 to $20.50
No. 1 machinery cast	19.50 to 20.00
No. 2 machinery cast	15.50 to 16.50
Stove plate	14.50 to 15.00
Railroad malleable	19.50 to 20.00

The following prices are offered per gross ton lots f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$13.25 to $13.75
No. 1 railroad wrought	13.50 to 14.00
No. 1 yard wrought	12.50 to 13.00
Wrought pipe (1 in. in diameter, over 2 ft. long)	12.00 to 12.50
Machine shop turnings	10.00 to 10.25
Cast iron borings, chemical	12.00 to 12.50
Cast iron borings, rolling mill	10.00 to 10.25
Blast furnace borings and turnings	9.00 to 9.50
Forged scrap	10.00 to 10.50
Bundled skeleton, long	10.00 to 10.50
Forged flashings	10.00 to 10.50
Bundled cotton ties, long	10.00 to 10.25
Bundled cotton ties, short	10.00 to 10.50
Shaftings	18.50 to 19.00
Street car axles	18.00 to 18.50
Rails for rerolling	13.00 to 13.50
Scrap rails	12.50 to 13.00

Buffalo

Pig Iron Demand Declines—Purchase of 20,000 Tons of Heavy Melting Steel

BUFFALO, Nov. 17.—Following

800 tons. A local broker has sold 150 tons of ferromanganese and 100 tons of spiegeleisen. Assignment of all available freight cars owned by Southern railroads to service in the West Virginia and Kentucky coal fields is beginning to delay shipments of Southern iron into this territory.

Based on freight rates of $3.67 from Birmingham and $2.27 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base)	$24.67 to $25.67
Alabama fdy., sil. 2.25 to 2.75	25.17 to 26.17
Tennessee fdy., sil. 1.75 to 2.25	24.05
Southern Ohio silvery, 8 per cent	30.77
Southern Ohio fdy., sil. 1.75 to 2.25	23.27
Southern Ohio, malleable	23.27

Sheets.—A recession in sales has followed in the wake of the buying movement which was at its height in the latter part of October and the first week in November. Since producers are unable to accept orders for delivery this year and are, in most cases, unwilling to contract for the first quarter, few sales have been made. Galvanized sheets are in considerable demand and consumers are concerned over the upward trend of prices and inability to secure material promptly. Quotations range from 4.50c. to 4.60c., Pittsburgh, with indications pointing to establishment of the latter figure as a minimum within a few weeks. Blue annealed prices are growing stronger and at least one mill is asking 2.50c., Pittsburgh, although 2.40c. better represents the market. Black sheets are in fair demand with several makers attempting to raise prices from 3.25c. to 3.35c., Pittsburgh. Sales of automobile sheets have been somewhat curtailed, but 4.40c., Pittsburgh, remains as the prevailing price. Mills in this territory have slightly increased their operations and are running at 87 per cent of capacity. The Newport Rolling Mill Co. has announced that it will accept first quarter orders on the basis of 4.60c., Pittsburgh, for galvanized, 3.35c. for black and 2.50c. for blue annealed. These prices are also applicable to orders for delivery over the remainder of the year.

Bars, Plates and Shapes.—Although the week has been productive of no large orders, the tonnage booked attained a respectable total. Bars are showing strength at 2c., Pittsburgh, and a considerable number of single carload sales have been made at 2.10c. Those consumers who are in need of stock at once are paying the latter price on lots up to 100 tons. Both specifications and orders for plates have been disappointing, and prices continue to range from 1.85c. to 1.90c., Pittsburgh. The Louisville & Nashville Railroad is reported in the market for approximately 800 tons of plates for prompt shipment. While several producers are consistently quoting 2c., Pittsburgh, on shapes, they will take 1.90c. for attractive lots. Fabricators have taken a fair number of small jobs, but sizable lettings are lacking.

Reinforcing Bars.—Although there have been a moderate number of small lettings, few sizable projects are before the market. Prices of new billet bars are firm at 2c., Cleveland, and rail steel bars are steady at 1.90c., mill.

Wire Goods.—Common wire nails and plain wire are quoted at $2.65 and $2.50, Ironton or Pittsburgh, respectively.

Warehouse Business.—A distinct gain in orders during the past week has placed the volume of warehouse business in the first half of November almost on a par with bookings in the same period in October. Bars are in better demand and consumers are manifesting interest in galvanized and blue annealed sheets. Orders for cold-rolled products have been consistently good. No change has been made in prices.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4c. to 4.25c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds and hexagons, 3.85c.; squares, 4.35c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, 4.10c.; No. 28 galvanized sheets, 5.25c.; No. 9 annealed wire, $3 per 100 lb.; common wire nails, $2.95 per keg base; cement coated nails, $2.40 per keg; chain, $7.55 per 100 lb. base; large round head rivets, $3.75 base; small rivets, 65 per cent off list. Boiler tubes: prices net per 100 ft. lap welded steel tubes, 2-in., $18; 4-in., $38; seamless, 2-in., $19; 4-in., $39.

Coke.—The market is less active. Buyers are awaiting developments in prices before placing substantial tonnages. Dealers believe that no change will be made in the price of by-product foundry coke during the rest of the year. The present quotation is $10.14, delivered Cincinnati. A leading seller is now closing by-product foundry coke contracts for 1926 and expects to have all of his available supply taken by Jan. 1, thereby establishing a new record. By-product coke companies in the Ironton district are operating at capacity and are unable to furnish all of the domestic coke that is being called for. Wise County and New River foundry and domestic grades are moving at a moderate rate.

Based on freight rates of $2.14 from Ashland, Ky., $3.53 from Connellsville, $2.90 from New River ovens and $2.59 from Wise County ovens, we quote f.o.b. Cincinnati: Connellsville foundry, $11.53 to $12.53; Wise County foundry, $8.09 to $9.59; New River foundry, $9.90 to $11.40; by-product foundry, $10.14.

Old Material.—The market is notable for its steadiness rather than for its activity. Increased mill production has necessitated more liberal specifications against contracts. Prices are firm, with heavy melting steel bringing $15 to $15.50. The Louisville & Nashville today closed a small list, totaling about 5000 tons.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	$15.00 to $15.50
Scrap rails for melting	15.00 to 15.50
Short rails	19.00 to 19.50
Relaying rails	28.00 to 28.50
Rails for rolling	16.00 to 16.50
Old car wheels	14.50 to 15.00
No. 1 locomotive tires	17.50 to 18.00
Railroad malleable	16.50 to 17.00
Agricultural malleable	16.00 to 16.50
Loose sheet clippings	10.00 to 10.50
Champion bundled sheets	12.00 to 12.50
Per Net Ton	
Cast iron borings	9.50 to 10.00
Machine shop turnings	8.50 to 9.00
No. 1 machinery cast	20.00 to 20.50
No. 1 railroad cast	16.00 to 16.50
Iron axles	23.50 to 24.00
No. 1 railroad wrought	12.50 to 13.00
Pipes and flues	10.00 to 10.50
No. 1 busheling	11.50 to 12.00
Mixed busheling	10.00 to 10.50
Burnt cast	10.50 to 11.00
Stove plate	11.50 to 12.00
Brake shoes	11.50 to 12.00

St. Louis

Wabash Buys 20,000 Tons of Rails—Record Coke Sales—Pig Iron Active

ST. LOUIS, Nov. 17.—Demand for pig iron for first quarter shipment continues active, and sales of the St. Louis Coke & Iron Co. during the week totaled about 7000 tons for that delivery. Of this, 2500 tons is for a car company, 1200 tons for a St. Louis melter, 1000 tons for an Illinois specialty maker and 500 tons for a local jobbing foundry. Producers generally are cautious in making commitments for next year. Melt is steadily increasing, with stove plants, car makers and implement interests especially active. The market is firm, with the St. Louis Coke & Iron Co. quoting $23.50, Granite City, with Northern foundry at $23, base Chicago, and with Southern at $21, base Birmingham. The new freight rate now in effect on all-rail shipments from Birmingham to St. Louis is $4.42, a reduction of 75 cents a ton.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices $2.16 freight from Chicago, $4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$24.16 to $24.66
Northern malleable, sil. 1.75 to 2.25	24.16 to 24.66
Basic	24.16 to 24.66
Southern fdy., sil. 1.75 to 2.25	25.42 to 26.42
Granite City iron, sil. 1.75 to 2.25	23.81 to 24.31

Finished Iron and Steel.—The Wabash Railway has placed orders for 20,000 tons of 110-lb. and 90-lb. rails for delivery during the first half of next year, allocated as follows: Illinois Steel Co., 10,500 tons; Inland Steel Co., 6500 tons and Bethlehem Steel Co., 3000 tons. The only other pending rail inquiry in this district is that of the Missouri-Kansas-Texas Railroad.

Word comes from Houston, Tex., that the order of the International & Great Northern Railroad will be placed soon. No jobs requiring sizable tonnages of structural steel are pending, and fabricators have reached the point where they need business badly. Reinforcing bar business is light after an active week.

For stock out of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plates, 3.25c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, cold rolled, one pass, 4.50c.; galvanized sheets, No. 28, 5.50c.; black corrugated sheets, 4.65c.; galvanized, 5.65c.; cold-rolled rounds, shafting and screw stock, 3.75c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, ⅞ in. diameter and smaller, 70 per cent off list; machine bolts, 55 per cent; carriage bolts, 50 per cent; lag screws, 60 per cent; hot pressed nuts, square, $3.50; hexagons, blank or tapped, $4 off list.

Coke.—October showed the heaviest sales of coke of any month in the history of the St. Louis Coke & Iron Co., and buying has been so active thus far this month that a new high record seems assured. Demand for domestic grades is swelling the volume of sales among all the by-product ovens in the district. An inquiry for 20,000 tons for shipment to Canada and another for 10,000 tons to Milwaukee hold the center of interest. Demand for foundry coke is declining.

Old Material.—Heavy melting steel and heavy shoveling steel are slightly lower because of a lack of buying. A better demand is reported for rerolling rails. Otherwise users are playing a waiting game. Railroad lists are heavy.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	$15.00 to $15.50
Rails for rolling	19.25 to 19.75
Steel rails less than 3 ft	19.25 to 19.75
Relaying rails, 60 lb. and under	24.00 to 25.00
Relaying rails, 70 lb. and over	30.00 to 31.00
Cast iron car wheels	18.00 to 18.50
Heavy melting steel	16.25 to 16.75
Heavy shoveling steel	16.00 to 16.50
Frogs, switches and guards cut apart	18.50 to 19.00
Railroad springs	19.00 to 19.50
Heavy axles and tire turnings	13.50 to 14.00
No. 1 locomotive tires	17.00 to 17.50
Per Net Ton	
Steel angle bars	15.50 to 16.00
Steel car axles	18.00 to 18.50
Iron car axles	25.25 to 25.75
Wrought iron bars and transoms	20.00 to 20.50
No. 1 railroad wrought	13.50 to 14.00
No. 2 railroad wrought	14.25 to 14.75
Cast iron borings	11.50 to 12.00
No. 1 busheling	12.50 to 13.00
No. 1 railroad cast	15.25 to 15.75
No. 1 machinery cast	17.00 to 17.50
Railroad malleable	15.00 to 15.50
Machine shop turnings	9.00 to 9.50
Bundled sheets	9.25 to 9.75

Birmingham

Gadsden Furnace Blown in—Coke Plants Run Full

BIRMINGHAM, Nov. 17.—Furnaces in the Birmingham district are virtually out of the market, selling to regular customers but holding firmly to the quotations which range from $21 upward on No. 2 foundry iron. The probable output of the first quarter of 1926, even with increased production, has been committed or will be when complete reservations are received. The Gadsden No. 1 furnace of the Sloss-Sheffield Steel & Iron Co. is now in operation and its Sheffield furnace, under repairs, will be ready for operation by Nov. 25. The Republic Iron & Steel Co. now has two blast furnaces on foundry iron which, with the Gadsden stack, will aid materially in filling orders which have been booked. There is very little surplus stock left on the yards; hence new business will have to be taken care of out of production. Southern furnaces appear confident that demand will remain steady through the first half of the coming year. Production is being closely watched. One of the Bessemer furnaces of the Tennessee Coal, Iron & Railroad Co. is on ferromanganese.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$21.00 to $22.00
No. 1 foundry, 2.25 to 2.75 sil.	21.50 to 23.00
Basic	21.00
Charcoal, warm blast	30.00 to 32.00

Rolled Steel.—With railroads placing orders for large tonnages of rails, accessories and other forms of steel, and with fabricating plants in this district and elsewhere buying steadily, the market is active with prices firm. Fabricators in Birmingham are using their influence to expedite shipments to Florida and are obtaining somewhat better deliveries than for some time past. Tanks and other plate products are in good demand. Soft steel bars are quoted at 2.15c. to 2.25c., tank plates, 2c. to 2.10c., and structural shapes, 2.05c. to 2.15c., base Birmingham.

Cast Iron Pipe.—Continued activity is noted in the pipe industry, with pressure pipe plants operating almost at capacity and soil pipe and fittings output better than for some time.

Coke.—All by-product plants of the district are in full operation and beehive ovens are producing at a good rate. Demand is strong and quotations on foundry coke still range from $5.75 to $6 per ton, Birmingham. Shipments are good. Railroads which were asked to readjust freight rates to East, reply that such business would take many cars away from the district and would be unprofitable because no traffic would bring the equipment back.

Old Material.—No letup in the market can be observed, and much old material is being moved. The recent advance of $1 per ton on various grades had no adverse effect on buying. Much scrap is being melted.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	14.00 to 14.50
Railroad wrought	13.00 to 13.50
Steel axles	19.00 to 20.00
Iron axles	18.00 to 19.00
Steel rails	14.00 to 14.50
No. 1 cast	17.00 to 17.50
Tramcar wheels	17.00 to 17.50
Car wheels	16.00 to 16.50
Stove plate	14.00 to 14.50
Machine shop turnings	8.00 to 8.50
Cast iron borings	8.00 to 8.50
Rails for rolling	17.50 to 18.00

New York

Added Freight Car Purchases—Forward Steel Buying Negligible—Coke Weak

NEW YORK, Nov. 17.—Sales of local brokers are estimated at 4000 tons, the poorest week's business in some time. Weakness in coke has undoubtedly had an effect on the buyers' attitude toward forward requirements in iron. While there is no longer much anxiety to get under cover, most of the larger users appear to have contracted for the bulk of their requirements through first quarter. Some of them, in fact, have placed orders for additional tonnage at current prices, indicating confidence in present levels even though further advances are not feared. Current business, in fact, is made up largely of small lots. Pending inquiries, none of them large, aggregate 3000 tons. The Sweet & Doyle Foundry & Machine Co., Green Island, N. Y., is in the market for 200 tons of foundry for first quarter. Buffalo foundry iron has advanced to a minimum of $21, base furnace, while eastern Pennsylvania foundry continues to range from $22.50 to $23, base furnace, with relatively little of it being pressed for sale. Indian iron is practically out of the market, but Continental brands continue to be offered at unchanged prices. It is probable that the competition of foreign furnaces and the break in coke prices were both factors in checking the advance in domestic iron. The coke situation is still perplexing to domestic producers. The Port Henry stack may not get into blast until Dec. 1, because of labor difficulties at the ovens from which it has bought its coke.

We quote delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.54 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25	$25.02 to $25.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	25.52 to 26.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	26.02 to 26.52
Buffalo, sil. 1.75 to 2.25	25.91
No. 2 Virginia, sil. 1.75 to 2.25	29.54

Ferroalloys.—It is evident that there is considerable quiet negotiating for ferromanganese for next year's consumption without the formality of regular bids. Quite a number of sales have been made, the total being estimated at not less than 1000 tons, with one consumer in the Pittsburgh district taking 500 tons for first quarter delivery. Some of the sales have been for December and first quarter combined and in some cases contracts call for delivery into the first half. All the sales are reported at $115, seaboard. A statement that German ferromanganese has been offered at $113 cannot be confirmed. The spiegeleisen market is strong and moderately active at unchanged prices.

Finished Iron and Steel.—With freight car orders as noted elsewhere totaling over 8000 for the week, the railroad equipment market appears to be taking an upward swing in line with increased buying of steel in other lines. Steel requirements of the car business now closed or in sight may well reach 200,000 tons. With the exception of plates from Eastern mills, the steel situation continues the stronger price trend noted in these reports in the past two weeks. As Eastern plate mills are not getting sufficient tonnage to give them the backlogs that make price advances effective, plates are still to be had at 1.60c., Pittsburgh, from these mills, though Pittsburgh mills quote 1.90c. to 2c. Structural shapes are firmer at 1.90c., Pittsburgh, in that there are fewer sales under that figure. Bars are firm at 2c., Pittsburgh, for this year, with some mills asking 2.10c. for first quarter. Deliveries on small rounds and flats cannot be promised earlier than January by some makers, while larger sizes are not obtainable in less than three to five weeks. The sheet market, for months the weakest spot in the steel trade, now presents a strong front. Some makers of galvanized sheets have made 4.60c., Pittsburgh, their minimum quotation, although galvanized sheets are to be had at 4.50c. Black sheets range from 3.25c. to 3.35c. and blue annealed from 2.40c. to 2.50c. Cold finished steel bars remain at 2.50c., Pittsburgh, but new extras are being put into effect, as given in detail elsewhere in this issue. With the larger buyers of tin plate, including the American Can Co. and the Standard Oil Co., now in the market for their 1926 requirements, the announcement of the tin plate price for next year is expected momentarily. In the face of higher prices for pig tin, it is the general belief in the trade that the $5.50 per box will be next year's quotation. It is stated, however, that concessions of 10c. to 25c. per box, generally given this year to the larger consumers, will be cut approximately in half. Most of the mills are receptive to first quarter contracting at the prices now quoted on plates, shapes, bars and sheets, but buyers seemingly are not fully convinced that prices will hold as now named and are slow in entering into first quarter commitments. Nevertheless a few contracts have been made where buyers required protection. Some mills have advanced wire rods to $46, but first quarter contracts have been entered into at $45. Structural steel lettings continue in good volume, indicating a large amount of winter construction.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. to 2.44c.; plates, 1.94c. to 2.04c.; structural shapes, 2.24c. to 2.34c.; bar iron, 2.24c.

Warehouse Business.—Prices continue firm and generally unchanged with the exception of black and galvanized sheets, which have been stepped up another 15c. per 100 lb. On the whole, however, the volume of business booked by iron and steel warehouses has been slightly smaller this week than in the preceding week of this month and in October. This is particularly true of structural steel sales, but as the tonnage being purchased out of stock had shown considerable increase in recent weeks, the present slight decline leaves a fair degree of activity. Prices on page 1436. We quote boiler tubes per 100 ft., as follows:

Lap welded steel tubes, 2-in., $17.33; seamless steel, 2-in., $20.24; charcoal iron, 2-in., $25; 4-in., $67.

Coke.—Recent evidence of weakness in the coke market has developed into a pronounced downward movement of prices on all grades with plenty of the domestic sizes available. The Pennsylvania Railroad embargo on domestic coke shipments at South Amboy, N. J., effective Nov. 4, is understood to have resulted in backing up close to 2400 cars of the domestic grade and, meanwhile, cargoes of the foreign product are beginning to arrive at Atlantic ports. In addition to the seven cargoes of German coke reported coming to the account of a Boston dealer, a Philadelphia coal and coke dealer is reported to have diverted close to 15,000 tons of foreign coke to Boston for dock storage and a German importer has several cargoes of coke in transit. The increased number of ovens in operation in the Connellsville district is regarded as a further contributing factor to the present unsettlement, which began when the domestic coke market had reached a price higher than dealers and consumers were willing to pay. Foundry coke is quoted today at $7.50 to $8 per ton with domestic run of the oven at $7, egg $7.50 and stove and nut $8 per ton. By-product is unchanged at $11.52 per ton, delivered Newark and Jersey City, N. J.

Cast Iron Pipe.—Although prices are strong and show a slight upward tendency on the smaller purchases by private users, municipal lettings, on which the competition of the foreign product is usually encountered, still bring out concessions of several dollars a ton. The 1400 tons of pipe for Providence, R. I., on which the Pont-a-Mousson works was low bidder and a local contractor bidding on Gelsenkirchener Bergwerks pipe next to the low price, has not yet been awarded. The 1000 tons of pipe for Pleasantville, N. J., on which the Pont-a-Mousson works was also low, is still pending. The soil pipe market is quiet but discounts are quite firm. Active purchasing for delivery next year is not expected for another fortnight or longer.

We quote pressure pipe per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, $50.60 to $52.60; 4-in. and 5-in., $55.60 and $57.60; 3-in., $65.60 to $67.60, with $5 additional for Class A and gas pipe. Discounts of both Northern and Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 45 to 45¾ per cent off list; heavy, 55 to 55¾ per cent off list.

Old Material.—Prices of most grades are still registering slight advances, but on the whole, the market is not quite so active as in the previous fortnight. Buying prices of brokers on heavy melting steel cover a rather wide range, offers of $16.50 per ton up to $17.75 per ton being the rule for deliveries to various eastern Pennsylvania consumers, including those at Bethlehem and Pencoyd, Pa. Forge fire ranges from $11 to $11.75 per ton, New York, on purchases made for delivery to eastern and western Pennsylvania consumers.

Buying prices per gross ton New York follow:

Heavy melting steel (yard)	$11.75 to $12.25
Heavy melting steel (railroad or equivalent)	13.50 to 14.25
Rails for rolling	14.50 to 15.00
Relaying rails, nominal	23.00 to 24.00
Steel car axles	22.00 to 22.50
Iron car axles	24.50 to 25.00
No. 1 railroad wrought	15.50 to 16.00
Forge fire	11.25 to 11.75
No. 1 yard wrought, long	14.50 to 15.00
Cast borings (steel mill)	10.75 to 11.25
Cast borings (chemical)	14.00 to 14.50
Machine shop turnings	10.50 to 11.00
Mixed borings and turnings	10.50 to 11.00
Iron and steel pipe (1 in. diam., not under 2 ft. long)	12.75 to 13.25
Stove plate (steel mill)	11.00 to 11.25
Stove plate (foundry)	12.00 to 12.50
Locomotive grate bars	12.50 to 13.00
Malleable cast (railroad)	16.50 to 17.50
Cast iron car wheels	14.50 to 15.00
No. 1 heavy breakable cast	14.00 to 14.50

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$18.50 to $19.00
No. 1 heavy cast (columns, building material, etc.), cupola size	17.00 to 17.50
No. 2 cast (radiators, cast boilers, etc.)	16.00 to 16.50

Donner Steel Plant Expansion

The Donner Steel Co., Buffalo, will proceed with the construction of two additions to its plant at 375 Abbott Road, consisting of a one-story roll shop, to cost $21,000, exclusive of machinery, and a one-story finishing mill, to cost $30,000, without equipment. Permit for the work has been secured.

Cleveland

First Quarter Steel Buying Bulks Large—Lake Boat Inquiries

CLEVELAND, Nov. 17.—Considerable business was booked the past week in contracts for steel bars, plates and structural material for the first quarter, and one producer reports that most of its larger consumers are now covered for that delivery. However, some of the mills have not yet opened their books for that period. Important developments in the price situation the past week include advances on semi-finished steel, sheets and alloy steel bars, the reestablishment of present prices on cold rolled strip for the first quarter and the general adoption of the present hot rolled strip prices for the same delivery. Current orders are good and one leading producer reports that its tonnage entered so far this month is 95 per cent more than during the same period in October. The increased demand appears due to the desire of consumers to accumulate a backlog rather than to any increase in the consumption of material. The stiffening of prices is also apparently having the effect of driving many into the market for future requirements. Consumers are crowding the mills for deliveries and there is a falling behind on steel bar shipments. Steel bars are firm at 2c., Pittsburgh, with some small lots going at 2.10c. One Youngstown mill Monday advanced its price to 2.10c. for lots less than 500 tons. While the plate market is firmer with 1.90c., Pittsburgh, the usual minimum, 1.80c. has not disappeared in this market, and many consumers have protection at the lower prices. The Lake shipbuilding industry shows more life. Inquiries for two boats, one requiring 4000 tons and another 1600 tons of steel, and also 200 tons for boat repair work, came out during the week. Another Lake boat requiring 5000 tons is still pending. Bids have been taken for a Brooklyn, N. Y., pipe line requiring 1500 tons of plates. In the structural field a Detroit hotel project requiring 3000 tons or more of steel has been revived.

Jobbers quote steel bars, 3.10c.; plates and structural shapes, 3.20c.; No. 28 black sheets, 3.95c.; No. 28 galvanized sheets, 5.10c.; No. 10 blue annealed sheets, 3.15c.; cold rolled rounds and hexagons, 3.80c.; flats and squares, 4.30c.; hoops and bands, 3.85c.; No. 9 annealed wire, $3 per 100 lb.; No. 9 galvanized wire, $3.45 per 100 lb.; common wire nails, $3 base per 100 lb.

Pig Iron.—Though the market is firm, the advance in prices seems to have been checked. With Cleveland furnaces still out of the market, prices in a large part of northern and central Ohio are governed by the Valley and southern Ohio markets. Valley producers quote foundry iron at $20.50 to $21, base furnace. While some are holding to the higher price for the first quarter, Valley iron can still be bought for that delivery at $20.50. In southern Ohio the market is $21, base furnace. In Buffalo $21.50, base furnace, is commonly quoted for the first quarter and the market is firm at $21 for this year. Lake furnace prices range from $21 to $23. The latter is the ruling price in the Michigan territory, where carlot sales of spot iron are reported at as high as $25. A Berea, Ohio, consumer has purchased 4000 tons of foundry iron for the first quarter at $21 from furnaces having the Valley freight rate of $1.76. A 750-ton lot, bought by an Indianapolis automotive plant, went to southern Ohio at the same price, base furnace, and other lots, amounting to several thousand tons, in central and western Ohio and Indiana, went to either Valley or southern Ohio furnaces in competition with Lake furnaces. Sales during the past week were not as large as in the previous week, but there is a large volume of pending business. Considerable inquiry has come out for the entire first half, but furnaces will not sell beyond the first quarter. The Andrews Steel Co., Newport, Ky., is inquiring for basic iron for its first quarter requirements. While the amount wanted is not named, it is expected to be around 25,000 tons. Low phosphorus iron has advanced 50c. or more. One 300-ton lot sold in the Cleveland territory brought $28.50.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c.: switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6.01 from Birmingham:

Basic, Valley furnace	$20.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25	$22.26 to 22.76
Southern fdy., sil. 1.75 to 2.25	26.01 to 27.01
Malleable	22.26 to 22.76
Ohio silvery, 8 per cent	31.52
Standard low phos., Valley furnace	28.00 to 28.50

Alloy Steel.—The alloy steel market is firmer. Some of the mills have withdrawn outstanding quotations and the present price range is from $1 to $2 higher than a week ago.

Semi-finished Steel.—A local producer has advanced its price to $37.50, Cleveland and Youngstown, on sheet bars and small billets, and reports a number of sales in small lots for early shipment, aggregating 10,000 to 15,000 tons at that price and the refusal of an offer at the same price f.o.b. Pittsburgh. This mill has not quoted recently on slabs. While the Youngstown market on sheet bars and small billets appears to be $36, the supply for early shipment has become scarce and the increase in sheet mill operations has stimulated demand. It is predicted that the first quarter price on sheet bars will be established at $37.50.

Sheets.—Prices for the first quarter have been established by most of the independent mills at a $2 a ton advance, or 3.35c., Pittsburgh, for black, 2.50c. for blue annealed and 4.60c. for automobile body and galvanized. A number of the mills are entirely committed for the remainder of the year, but some that can take on additional business for this year are still quoting the old prices for early shipment. Others have put the higher prices in effect for early delivery. However, the higher prices will not apply to much of this year's business, as most consumers have placed liberal orders for December shipment. Some business for the first quarter has already been entered at the higher prices.

Strip Steel.—Following the recent extension of current prices for hot-rolled strip steel to the first quarter by one producer, most mills have opened their books for that delivery at the same prices, or 2.30c., Pittsburgh, for wide strip, and 2.50c. for narrow material. Considerable first quarter business has been taken. Cold-rolled strip has been established for the first quarter at the current price of 3.90c., Cleveland.

Cold-finished Steel Bars.—A new list of extras has been placed in effect on cold-finished steel. The base price is unchanged, but screw stock has been advanced $2 a ton by the provision of a new extra on that material.

Coke.—The market is weak. A further decline of $1 a ton has brought asking prices down to $8 to $8.50, ovens, for Ohio by-product coke suitable for domestic use. The Eastern market appears flooded with Connellsville coke and there is virtually no demand from that source, although some has sprung up for Western shipment. Connellsville foundry coke has declined and is now quoted at $7.50 to $8, the higher price holding for premium brands. Ohio by-product foundry coke is unchanged at $9 at ovens.

Bolts, Nuts and Rivets.—A Cleveland manufacturer has advanced small rivets to 70 and 10 per cent off list for the first quarter. At present 70, 10 and 5 per cent off list is commonly quoted. Makers are holding firmly to $2.60 per 100 lb., Cleveland, for large rivets, but are not quoting for the first quarter. There is some talk of an advance for that delivery but this will depend on the cost of the raw material. Demand for bolts and nuts continues heavy and prices are firm.

Old Material.—A Cleveland steel plant, which discontinued the use of scrap in its blast furnaces recently, is again using it and has purchased 12,000 tons or more of turnings the past week, paying $14.50, delivered. Dealers claim that they are paying the same price to fill the order. The market generally is not active and lacks strength, particularly on borings and mixed borings and turnings, which are 25c. a ton lower. Dealers were paying $19.50 for heavy melting steel for

Youngstown delivery a few days ago, but are now offering only $19.25. Local mills are covered on scrap either for several weeks or well into the first quarter.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel	$17.25 to $17.50
Rails for rolling	16.75 to 17.00
Rails under 3 ft	19.50 to 20.00
Low phosphorus melting	19.00 to 19.25
Cast iron borings	14.25 to 14.50
Machine shop turnings	13.50 to 14.00
Mixed borings and short turnings	14.25 to 14.50
Compressed sheet steel	15.50 to 16.00
Railroad wrought	14.50 to 15.00
Railroad malleable	20.00 to 20.50
Light bundled sheet stampings	12.50 to 12.75
Steel axle turnings	15.25 to 15.50
No. 1 cast	18.00 to 18.50
No. 1 busheling	14.25 to 14.50
Drop forge flashings	14.75 to 15.00
Railroad grate bars	13.75 to 14.00
Stove plate	13.75 to 14.00
Pipes and flues	11.50 to 12.00

Canadian Scrap Stronger in Sympathy With Pig Iron

TORONTO, ONT., Nov. 17.—The Canadian old material market has shown little change in the past few weeks. Melters who covered their last quarter needs are ordering against contract, while at the same time there is a steady flow of small spot orders. Future buying is backward and only a few of the larger consumers have covered past the end of the year. Implement makers are showing some interest in the market and stove foundries and radiator firms are consuming larger tonnages than was the case earlier in the year. The mills at Hamilton, Ont., are running at about 70 per cent capacity and are furnishing a strong demand for heavy melting steel and turnings. While the market is firm, prices remain at recent levels, although it is now the opinion of local dealers that the advance in pig iron prices will be reflected in general advances in old material. In the Montreal market dealers are adding to their holdings and report a good demand for scrap on export account. Canadian dealers' buying prices are as follows:

Per Gross Ton

	Toronto	Montreal
Steel turnings	$10.00	$8.00
Machine shop turnings	10.00	8.00
Wrought pipe	7.00	8.00
Rails	11.00	11.00
No. 1 wrought scrap	12.00	13.00
Heavy melting steel	11.00	9.25
Steel axles	17.00	16.00
Axles, wrought iron	18.00	20.00
Net Tons		
Standard car wheels	16.00	16.00
Malleable scrap	14.00	13.50
Stove plate	13.00	13.00
No. 1 machinery cast	17.00	17.00

Scrap Softens at Detroit

DETROIT, Nov. 17.—Yard stocks of scrap that had been withheld from the market for some time past have been offered a little more freely during the past week, with the result that borings and short turnings and hydraulic compressed registered a decline of 25c. per ton. The market has not broken, but has a softer tone. Mills and furnaces are not showing any anxiety about buying at this time.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	$15.25 to $15.75
Borings and short turnings	11.75 to 12.25
Long turnings	10.75 to 11.25
No. 1 machinery cast	17.00 to 18.00
Automobile cast	23.00 to 24.00
Hydraulic compressed	13.75 to 14.25
Stove plate	13.50 to 14.50
No. 1 busheling	13.25 to 13.75
Sheet clippings	9.25 to 9.75
Flashings	12.50 to 13.00

Members of the Bridge, Structural and Ornamental Iron Workers' Union of Boston have voted to call off their strike on all construction work in that city. They returned to work on Oct. 29 at the old rate of $1.10 per hr. Approximately 400 members of the union quit work about the middle of October to establish a new rate of $1.25 per hr.

Philadelphia

Further Decline in Coke Prices Checks Activity in Pig Iron—Steel Firmer

PHILADELPHIA, Nov. 17.—A further decline in furnace coke to $5, Connellsville ovens, together with efforts that are being exerted to bring an end to the anthracite coal strike, has brought a quieter pig iron market. The sharp price advances on pig iron in the past two weeks have also served to slow up buying instead of having the opposite effect as has sometimes happened. Some Eastern pig iron producers, whose coke supply for next year is assured through by-product oven production, are more ready to sell for first quarter.

Advances of $2 a ton on sheets and a firmer tone in some other finished steel products have resulted in moderate buying for first quarter. Contracts for sheets for the early months of next year have been entered into at the top prices. The Eastern plate situation continues the weakest spot in the steel market, quotations remaining at 1.60c., Pittsburgh, from Eastern mills, notwithstanding an advance to 1.90c. by Pittsburgh mills.

Pig Iron.—The wave of pig iron buying which accompanied the advancing of prices in the last week of October and the first 10 days of November has subsided. The decline in coke prices has probably had an effect on the minds of buyers, but an important factor also is that most melters are covered for the remainder of this year and some have bought all or part of their estimated first quarter requirements. With the easing in the coke market some furnace interests are showing more readiness to sell for first quarter. There is very little domestic foundry iron available for the remainder of this year, but such as there is commands prices ranging from $22.50 to $23 for No. 2 plain and from $23 to $23.50 for No. 2X, f.o.b. furnace. Quotations for first quarter are generally on the basis of $23. One important user of basic iron is understood to have been negotiating for first quarter iron totaling perhaps 30,000 tons, but apparently no contract has been closed. A Philadelphia steel maker has bought about 5000 tons of basic, the usual quotation for which is $22, furnace. Some sales of foundry iron for first quarter have been made with the price to be based on trade paper quotations at time of shipment. Although receipts of foreign pig iron at this port last week were very light, substantial lots are expected, particularly from India, before the end of the year. Much of this has been sold at prices averaging $21.50 to $22, c.i.f., duty paid, Philadelphia.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$23.26 to $24.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	23.76 to 24.63
East. Pa. No. 1X	24.26 to 25.13
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17
Basic delivery eastern Pa.	22.50 to 23.50
Gray forge	22.00 to 23.00
Malleable	23.00 to 23.50
Standard low phos. (f.o.b. furnace)	24.00 to 25.00
Copper bearing low phos. (f.o.b. furnace)	24.50

Ferroalloys.—Sales of about 1000 tons of foreign ferromanganese have been made. The price for both imported and domestic alloy is unchanged at $115.

Billets.—Eastern mills have advanced quotations on billets and are again asking $35, Pittsburgh, and $40 for forging quality.

Plates.—Eastern plate mills are not sharing in the stronger steel price situation. Orders continue only in sufficient volume to maintain the rate of operation of the past month and without backlogs the mills see no way at present to sustain a price advance. The question of a price on first quarter contracts is being put up to the mills by buyers who desire protection. One mill has quoted 1.80c., Pittsburgh, for that period,

though some contracts have been entered into at a lower figure, and another mill is asking 2c.

Structural Material.—There is an increasing volume of business in structural shapes accompanied by a firmer attitude on prices by the mills. It is probable that quotations below 1.90c., Pittsburgh, are less numerous and apply strictly on very desirable tonnage. On such orders prices equivalent to 1.80c., Pittsburgh, are still being given, but the bulk of the tonnage is at 1.90c. Structural steel building work continues in fairly good volume.

Bars.—Although some mills are quoting 2.10c., Pittsburgh, for steel bars for first quarter, contracts have been entered into at 2c. This also is the price for delivery over the remainder of the year and is very firm. Many buyers are covered, however, by contracts made some time ago at 1.90c. Makers of bar iron in the East are now naming 1.90c., Pittsburgh, or 2.22c., Philadelphia, an advance of $2 a ton.

Sheets.—An Eastern maker of blue annealed sheets has made first quarter contracts at 2.50c., Pittsburgh, which is an advance of $2 a ton. Most independent mills have advanced prices on all grades $2, making black 3.35c. and galvanized 4.60c., Pittsburgh.

Warehouse Business.—Local warehouses have advanced blue annealed sheets to 3.50c. and cold rolled rounds and hexagons have been put up to 4c. and squares and flats to 4.50c. Prices on various products for local delivery are as follows:

Soft steel bars and small shapes, 3.20c.; iron bars (except bands), $3.20c.; round edge iron, 3.50c.; round edge steel, iron finished, 1½ x ½ in., 3.50c.; round edge steel, planished, 4.30c.; tank steel plates, ¼ in. and heavier, 2.80c. to 3c.; tank steel plates, ⅜ in., 3c.; blue annealed steel sheets, No. 10 gage, 3.50c.; black sheets, No. 28 gage, 4.55c.; galvanized sheets, No. 28 gage, 5.65c.; square twisted and deformed steel bars, 3c.; structural shapes, 2.75c. to 2.90c.; diamond pattern plates, ¼ in., 5.30c.; ⅜ in., 5.50c.; spring steel, 5c.; rounds and hexagons, cold-rolled steel, 4.00c.; squares and flats, cold-rolled steel, 4.50c.; steel hoops, 4.25c., base; steel bands, No. 12 gage to ⅜ in., inclusive, 3.90c.; rails, 3.20c.; tool steel, 8.50c.; Norway iron, 6.50c.

Imports.—Last week's imports at Philadelphia were as follows: Pig iron, 500 tons from the Netherlands, 250 tons from England, 969 tons from India and 100 tons from Luxemburg; iron ore from the Netherlands, 520 tons; structural steel from Belgium, 287 tons.

Old Material.—The scrap market continues strong. There have been only minor price changes within the week, but these have been advances. The market range on heavy melting steel is now $17.50 to $18, the latter price having been paid by one mill. Other mills are freely offering $17.50 but are able to pick up only small lots at that price.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	$17.50 to $18.00
Scrap rails	$17.00 to 17.50
Steel rails for rolling	18.50 to 19.00
No. 1 low phos. heavy 0.04 and under	22.00 to 22.50
Couplers and knuckles	21.50 to 22.00
Rolled steel wheels	21.50 to 22.00
Cast iron car wheels	18.50 to 19.00
No. 1 railroad wrought	18.50 to 19.00
No. 1 yard wrought	17.00 to 17.50
No. 1 forge fire	15.00 to 15.50
Bundled sheets (for steel works)	15.00 to 15.50
Mixed borings and turnings (for blast furnace use)	13.50 to 14.00
Machine shop turnings (for steel works use)	15.00 to 15.50
Machine shop turnings (for rolling mill use)	15.00 to 15.50
Heavy axle turnings (or equivalent)	15.50 to 16.00
Cast borings (for steel works and rolling mill)	14.50 to 15.00
Cast borings (for chemical plant)	17.00 to 17.50
No. 1 cast	18.00 to 19.00
Heavy breakable cast (for steel plant)	17.50 to 18.00
Railroad grate bars	15.00 to 15.50
Stove plate (for steel plant use)	15.00 to 15.50
Wrought iron and soft steel pipes and tubes (new specifications)	16.50 to 17.00
Shafting	23.00 to 24.00
Steel axles	24.00 to 25.00

The American Manganese Steel Co., Chicago Heights, Ill., has recently entered the field of alloys for resisting high temperature and corrosive conditions. It is producing "Fahralloy" castings which this company has developed under the supervision of Dr. F. A. Fahrenwald.

TAXATION DISCUSSED

National Founders Promoting Understanding Between Industry and Agriculture

A conference on State and local economy and taxation reduction was held in New York, Nov. 18 and 19, in conjunction with the annual convention of the National Founders Association. It was a continuance of the activities of the movement, "Better Understanding Between Industry and Agriculture," begun about a year ago by leading farmers and industrialists and furthered by the American Farm Bureau Federation and the National Grange, and the National Founders Association and the National Metal Trades Association. The movement functions through personal contacts between farmers, industrialists and transportation executives and takes advantage of industrial conventions and agricultural meetings to bring them together.

Henry D. Sharpe, Brown & Sharpe Mfg. Co., Providence, R. I., and William H. Barr, president National Founders Association, Buffalo, N. Y., are members of the executive committee. There is an advisory council of 66, equally divided between farm leaders and industrial leaders and representing 26 states. The chairman is Harold C. Smith, president Illinois Tool Works, Chicago.

A message from President Coolidge was read approving the extension of the national economy program into state and local communities. Representatives of industry, agriculture and transportation called on President Coolidge Thursday, Nov. 12, to inform him regarding the conference. The delegation consisted of Mr. Barr, R. H. Aishton, president American Railway Association; Enos Lee, Yorktown, N. Y., official representative of the American Farm Bureau Federation, and John H. Light, Lebanon, Pa., official representative of the National Grange. Speaking for the group, Mr. Barr said: "In a number of states the national example toward economy has been emulated with gratifying results. We propose extending the work wherever local organizations of farmers, manufacturers, merchants and others can be rallied together. Industry and agriculture find many problems in which they have a common interest. Taxation overburdens them both, federal taxation, and infinitely more so, state and local taxation. They applaud the national effort to reduce taxation, and they recognize the obvious duty resting on them to initiate group action in their states and communities to reduce the tax load."

Scrapping the 200 Ford Ships

DETROIT, Nov. 17.—While a definite program for scrapping the 200 vessels recently purchased by the Ford Motor Co. from the Government has not been completed, they have made plans to scrap half of these vessels at tidewater then load one of the scrapped vessels into another and bring them to the River Rouge plant of the Ford Motor Co. at Detroit. This would mean that they will save towage on approximately 100 boats.

Piers at Hog Island, near Philadelphia, may be leased for breaking up those ships which are to be shipped as explained.

Consider Simplification in Motor Trucks

WASHINGTON, Nov. 17.—General simplification and standardization of chassis and parts were considered at a two-day conference here last week by executives of motor truck companies with the Division of Simplification, Department of Commerce. One of the outstanding features of the meeting, to be followed by others, was discussion of the question of adopting four sizes of motor truck chassis to supplant the many sizes now made. The sizes suggested were the fast freight class, 1, 1½ and 2-ton; heavy duty class, 2½-3-ton and 4-5-ton.

FABRICATED STEEL

Bookings of Ten Months One-Sixth Better Than For Same Period of 1924

WASHINGTON, Nov. 17.—Sales of fabricated structural steel in October reported to the Bureau of Census by 168 firms with a capacity of 244,915 tons totaled 215,486 tons or 88 per cent of capacity. This compares with bookings of 201,766 tons in September reported by 187 firms with a capacity of 251,965 tons, making 80 per cent of capacity. Computed bookings in October were 255,200 tons against 232,000 tons in September. Shipments in October represented 91 per cent of the reporting firms, the computed tonnage shipped being 263,900 tons compared with 82 per cent, and computed shipments of 237,800 tons in September.

Computed bookings for the 10 months ended with October of the current year were 2,201,100 tons as against 1,893,700 tons for the corresponding period of last year and 1,806,900 tons for the corresponding period of 1923.

Structural Steel Awards Drop to 28,500 Tons and Inquiries Are Only 14,000 Tons

Compared with the preceding week, the awards of structural steel in the past week were low, 28,500 tons. New work up for bids totaled only 14,000 tons. The largest awards, 4500 tons each, were an office building on Fifth Avenue, New York, and a New York State hospital in Brooklyn. New York subway work, up for bids, requires 3750 tons, and a theater in New York will take 2500 tons. Awards follow:

Fred F. French Co., office building, 551 Fifth Avenue, New York, 4500 tons, to Taylor-Fichter Steel Construction Co.

Ziegfeld Theater, Sixth Avenue and Fifty-fourth Street, New York, 1000 tons, to Taylor-Fichter Steel Construction Co.

Coney Island Hotel, Coney Island, New York, 2000 tons, to Shoemaker Bridge Co.

Loft building, 219-223 East Forty-fourth Street, New York, 700 tons, to Harris Structural Steel Co.

Colton-Manor Hotel, Atlantic City, N. J., 800 tons, to American Brown-Boveri Electric Corporation.

West Philadelphia Title & Trust Co., bank building, Philadelphia, 300 tons, to McClintic-Marshall Co.

Fleetwood Metal Body Co., Fleetwood, Pa., manufacturing plant, 300 tons, to Austin Co.

Bank building, Fifteenth and Walnut Streets, Philadelphia, 600 tons, to American Bridge Co.

Pennsylvania Railroad, highway bridge at Yellow Creek, Ohio, 200 tons, to Pittsburgh Bridge & Iron Co.

Hotel, Fifty-eighth Street and Sixth Avenue, New York, 1000 tons, to Paterson Bridge Co.

Loft building, Lexington Avenue and Thirty-second Street, New York, 1200 tons, to Harris Structural Steel Co.

Loft building, Madison Avenue and Twenty-ninth Street, New York, 1800 tons, to Harris Structural Steel Co.

Apartment building, Seventy-second Street, between Madison and Park Avenues, New York, 1200 tons, to Easton Structural Steel Co.

School and college, Murdock Avenue, Bronx, New York, 800 tons, to Easton Structural Steel Co.

Apartment, 940 Park Avenue, 500 tons, to Bethlehem Fabricators.

Apartment, 988 Fifth Avenue, 500 tons, to New York Shipbuilding & Dry Dock Co.

New York State Hospital, Brooklyn, N. Y., 4500 tons, to Oswego Bridge & Iron Works, Oswego, N. Y.

Apartment, Central Park West and Ninety-second Street, 950 tons, to Bethlehem Steel Co.

Public school, Franklin and Fulton Streets, Hempstead, L. I., N. Y., 300 tons, to August Bellon, 252 Beach and Eighty-second Streets, Brooklyn, N. Y.

Telephone exchange, Brighton, Boston, 223 tons, to New England Structural Co., Boston.

Gillette Safety Razor Co., Boston, two additions, 310 tons, to New England Structural Co.

Woodward Iron Co., Woodward, Ala., railroad bridge, 200 tons, to American Bridge Co.

Fort Lauderdale Gas Co., Fort Lauderdale, Fla., 100,000-cu. ft. gas holder and two 20,000-gal. tanks, 300 tons, to Stacey Mfg. Co., Cincinnati.

Acme Steel Co., Chicago, addition to mill building, 160 tons, to McClintic-Marshal Co.

Bridge, Harris County, near Houston, Tex., 1000 tons, to American Bridge Co.

Elks' Club, Aurora, Ill., 200 tons, to Rock Island Bridge & Iron Works, Rock Island, Ill.

Pere Marquette Building Corporation, office building, New Orleans, La., 1125 tons, to St. Louis Structural Steel Co., St. Louis.

High school, Marshalltown, Iowa, 190 tons, to Pittsburgh-Des Moines Steel Co.

City of Los Angeles, steam power plant, unit No. 1, 150 tons of plates and 250 tons of boiler tubes, to Llewellyn Iron Works.

Worthington Pump & Machinery Corporation, Cincinnati, machine shop addition, 300 tons, to McClintic-Marshall Co.

Maryland Casualty Co., office building, Philadelphia, 260 tons, to McClintic-Marshall Co.

Jessup & Moore Paper Co., paper mill, Wilmington, Del., 300 tons, to McClintic-Marshall Co.

Public school building, Philadelphia, 350 tons, to McClintic-Marshall Co.

Ford Motor Co., assembly plant and other buildings at Chester, Pa., several thousand tons.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

New York subway, Section 2, route, 5, 3750 tons.

Consolidated Gas Co., Baltimore, addition, 500 tons.

Highway bridge at Stockton, N. J., 800 tons.

Store, New Haven, Conn., 400 tons.

High school building, New Haven, Conn. 300 tons.

Roxy Theater, Seventh Avenue and Fiftieth Street, New York, 2500 tons.

United Gas Improvement Co., Philadelphia, office building addition, 1890 tons.

Women's Home, Boston, 300 tons.

Court House, Newport, R. I., 150 tons.

Frank D. Chase, Inc., Clark and Monroe Streets, Chicago, 22-story office building, 1000 tons.

Power plant, Sanitary District, Niles Center, Ill., 1500 tons.

Western Water Co., Los Angeles, pipe line, 300 tons.

City of Everett, Wash., pipe line, 600 tons; bids close Dec. 1.

RAILROAD EQUIPMENT

Market More Active With Awards of About 8000 Cars and Inquiries Increasing

The New York Central has ordered 4500 freight cars and the Missouri Pacific 3250. The Lehigh Valley is inquiring for 1000 cars and the Wabash has increased its inquiry from 1000 to 2000 automobile box cars. Smaller orders and inquiries are more numerous.

The New York Central has ordered 4500 freight cars, divided as follows: 2000 box cars to American Car & Foundry Co.; 1000 steel gondolas to the Pullman Car & Mfg. Corporation; 500 steel gondolas to the General American Car Corporation; 500 steel gondolas to the Illinois Car & Mfg. Co.; 500 steel gondolas to the Standard Tank Car Co. The New York Central is inquiring for 120 passenger cars.

The Missouri Pacific has ordered 3250 freight cars, divided among the following companies: 1000 box cars, 250 furniture cars and 250 hopper cars to the American Car & Foundry Co.; 250 automobile cars and 250 stock cars to the Pennsylvania Car Co.; 500 box cars and 250 automobile cars to the Standard Tank Car Co.; 500 box cars to the General American Car Corporation.

The Lehigh Valley has issued an inquiry for 500 steel automobile cars and 500 steel hopper cars.

The Delaware, Lackawanna & Western has ordered 2 steel dining cars from the American Car & Foundry Co.

The Denver & Rio Grande Western placed 250 automobile cars with the Mount Vernon Car & Mfg. Co.

The Wabash inquiry for 1000 automobile box cars has been increased to 2000.

The St. Louis-San Francisco is in the market for 25 locomotives.

The Denver & Rio Grande Western has ordered 10 locomotives from the Baldwin Locomotive Works.

The Long Island Railroad is asking for figures on 20 passenger cars.

The Pennsylvania has entered the market for 12 passenger coaches.

The Tennessee Central Railway has contracted with the American Locomotive Co. for 4 Mountain type locomotives.

The Central of Georgia purchased 5 Mountain type locomotives from the Baldwin Locomotive Works.

The Wabash is taking figures on 25 8-wheel switching locomotives.

The Missouri-Pacific has ordered 10 Santa Fe type locomotives from the Baldwin Locomotive Works.

The Norfolk & Western is inquiring for 10 Mountain type locomotives.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
Nov.	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis
11.....	14.75	14.50	62.87½	9.85	9.50	9.07½	8.72½
12.....	14.75	14.50	64.50	9.85	9.50	8.95	8.60
13.....	14.75	14.50	64.25	9.85	9.50	8.85	8.50
14.....	14.75	14.50	....	9.85	9.50	8.85	8.50
16.....	14.75	14.50	64.00	9.85	9.50	8.85	8.50
17.....	14.62½	14.37½	63.62½	9.85	9.50	8.80	8.45

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, Nov. 17.

Quietness pervades most of the markets. Copper is inactive and lower. Tin is the strongest of the metals with good sales at higher prices. The lead market is easier. Considerable weakness has developed in zinc. Antimony continues scarce and higher.

Copper.—Demand for copper has been very light most of the week although some good inquiry is reported today. Lower prices in London, with willingness by some producers here to make concessions, has resulted in declining quotations. The statistics for October were not bullish nor were they distinctly unfavorable. They revealed a small increase in stocks of refined metal with the world output also higher than September by about 13,000 tons, most of this increase being in the United States and South America. Buyers have not been encouraged to make purchases because of these facts so that electrolytic copper has declined to 14.62½c., delivered, at which some sales are reported. Foreign demand is also small and this has been a factor in the weakness. Producers in general are not pessimistic because they consider the industry statistically strong and a few are out of the market at less than 14.75c., delivered. Lake copper is quoted at 14.62½., delivered.

Tin.—The market has been quite active most of the week with total sales about 1500 tons. It was largely November-December delivery, with practically all the buying by dealers who evidently were covering their short accounts. The most active day was Nov. 12 when 700 tons changed hands, or the largest total in a long time. The market, however, closed quiet. The following day was a dull one but on other days previous to Nov. 12 the market was fairly active. It is generally thought that large consumers must still buy for January-February delivery. Yesterday the market was again quiet and today only light sales were made with spot Straits tin quoted at 63.62½, New York. London quotations today were about £4 per ton higher than a week ago, with spot standard quoted at £284 15s, future standard at £282 2s 6d and spot Straits at £292 17s 6d. The Singapore price was £292. Arrivals thus far this month have been 2550 tons with 5280 tons reported afloat. Interesting comment is to the effect that Singapore recently has not been a free seller and Banca tin shipments have been light. Should this indicate that stocks are being built up, the effect on the market in the future might be bad.

Lead.—Demand in general is not particularly active, but producers' offerings for November are fairly liberal. There is some weakness apparent in London and the general situation here is a little easier. The leading interest continues to quote 9.75c., New York, as its contract price at which it is reported as booking business fairly liberally. The principal refiner in the West is maintaining its price at 9.50c., St. Louis. Other producers in the outside market have been able to realize somewhat higher prices than these in special cases. We quote the market at 9.50c., St. Louis, and 9.85c., New York.

Zinc.—Despite the fact that October statistics of the American Zinc Institute were of a bullish nature, the market has declined steadily since they were made public. The October production of slab zinc was 50,497 tons, with the shipments 54,818 tons, so that stocks in smelters' hands decreased 4321 tons. Stocks on hand at the end of October at 7475 tons were the smallest in many months and were equal to not more than a week's supply. Prime Western zinc was quoted today at 8.45c., St. Louis, or 8.80c., New York, a decline of about 50 points in the week. This is due partly to the desire of speculators to unload and also to an eagerness by sellers to book a rather unusual amount of forward business which developed and which had not previously appeared because of the scarcity of spot metal and high prices. Statistically, the market is stronger than ever and some predict much higher values.

Nickel.—Wholesale lots of ingot nickel are quoted unchanged at 34c. with shot nickel at 35c. The quotation for electrolytic nickel is 38c. per lb.

Antimony.—Chinese metal for spot delivery continues scarce with the quotation largely nominal at 20c., New York, duty paid. January arrival is quoted at 19.87½c. to 20c. with November-December shipment from China as high as 20c. or more.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c. per lb.

Old Metals.—While virgin metal moves up and down almost weekly scrap keeps on a fairly even keel with active business on the rises and dull periods when the drops occur. Dealers' selling prices are as follows in cents per lb.:

Copper, heavy and crucible	14.25
Copper, heavy and wire	13.25
Copper, light and bottoms	11.75
Heavy machine composition	10.25
Brass, heavy	9.00
Brass, light	8.00
No. 1 red brass or composition turnings	9.75
No. 1 yellow rod brass turnings	9.75
Lead, heavy	8.75
Lead, tea	7.00
Zinc	6.00
Cast aluminum	21.50
Sheet aluminum	21.50

Chicago

Nov. 17.—The October output of copper increased somewhat and the price has shaded off slightly. Tin has advanced in an active market and lead, zinc and antimony show the reflection of dull markets by slight reductions in prices. Quotations on used metals are unchanged. We quote in carload lots: Lake copper, 14.75c.; tin, 65c.; lead, 9.85c.; zinc, 8.55c.; in less than carload lots, antimony, 21c. On old metals we quote copper wire, crucible shapes and copper clips, 11.50c.; copper bottoms, 10c.; red brass, 9c.; yellow brass, 8c.; lead pipe, 8.50c.; zinc, 5.25c.; pewter, No. 1, 37c.; tin foil, 44c.; block tin, 52c.; all being dealers' buying prices for less than carload lots.

Zinc Export Association Formed

A new association, the Zinc Export Association, Inc., has recently been organized under the laws of the state of Delaware. Papers were filed on Nov. 13. The following officers have been elected:

President: A. J. McKay, president Matthiessen & Hegeler Zinc Co.

Vice-president: B. N. Zimmer, American Metal Co., New York, and Charles T. Orr, president Athletic Mining & Smelting Co., Joplin, Mo.

Treasurer: William A. Ogg, president American Zinc Lead & Smelting Co., Boston.

Secretary: Carl Klaustermeyer, Grasselli Chemical Co., Cleveland.

Besides the officers of the association, directors have been selected: J. G. Starr, president Quinton Smelting Co., Quinton, Okla.; B. Lissberger, United Zinc Smelting Co., Woolworth Building, New York; L. E. Wemple, president Illinois Zinc Co., Peru, Ill.; H. H. Roseman, Hegeler Zinc Co., Danville, Ill., and C. W. Martin, American Zinc Products Co., Greencastle, Ind.

The association has been formed for the purpose of increasing the exportation of slab zinc from the United States to foreign countries. It is expected that it will start functioning in a few days. The main office will be in New York.

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Franc Exchange Still Big Factor

Continental European Markets Remain Disorganized—British Situation Improved a Bit

(By Cablegram)

LONDON, ENGLAND, Nov. 16.

PIG iron is steadier, domestic foundries covering for their forward needs and more export inquiry showing up, including some from America for special irons. Hematite is strong on expanding domestic and export demand and some makers are asking higher prices.

Foreign ore shows an improving tendency. Bilboa Rubio is quoted at 20s. ($4.84) c.i.f. Tees.

Finished steel is dull and some prices are easier, on makers' anxiety to fill their order books. The government has declined to grant a subsidy on new shipbuilding.

October exports of pig iron amounted to 50,434 tons, of which 21,695 tons went to the United States. Total exports of iron and steel were 368,823 tons.

Sheets and Tin Plate

Tin plate is firm and there is a moderate all-around demand. Most makers are holding for 20s. ($4.84) basis, IC, f.o.b, for first-quarter shipment. Japan is inquiring for oil sizes. Welsh makers' meeting regarding the proposed pooling scheme has been postponed until Nov. 20.

Galvanized sheet activity is being maintained, with buying carrying deliveries up to February.

Black sheets are in moderate request for Japan. Other markets are quiet.

On the Continent of Europe

Continental markets are disorganized by the franc depreciation, which enables French works to quote cheaply. But few buyers are anxious to commit themselves, in view of the uncertainty of the situation.

Billets are being sold at £4 5s. ($20.57) f.o.b. Joists (beams) are being sold at £4 17s. 6d. (1.06c. per lb.) f.o.b.

German wire drawers and wire manufacturers are forming a syndicate to control sales and prices.

Arbed (Acieries Reunies de Burbach-Eich-Dudelange, having eight furnaces at Burbach, Saarbruck, six at Eich, six at Dudelange and three at Dommeldange, Luxemburg) has blown in a sixth furnace at Burbach.

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FRENCH MARKET QUIET

Franc Exchange Works Both Ways—Heavy Sheets Weak

PARIS, FRANCE, Oct. 30.—The market is completely dominated by the fluctuations of Anglo-Saxon exchanges. A calming influence has been brought about partly by the announcement of repressive measures to be taken against speculators and partly by the retirement of M. Caillaux who, as minister of finance, had upset public opinion by his intentions to increase taxes. Export business certainly is facilitated by the decrease of the franc; but there is always the other side of the question to be feared, i.e., the increase of production costs by lowered buying power of our money.

Coke.—During the first 27 days of October the O.R.C.A. has received from the Ruhr 196,735 tons of reparation coke, or a daily average of 7290 tons.

Pig Iron.—Home demand is calm on phosphoric pig iron. As the plants have been authorized to sell their November output, the next month will not commence with so much activity as usual since the reconstruction of the entente, because nearly all the output is already sold. A sales group offers phosphoric pig iron from

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British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.84 per £, as follows:

Durham coke, del'd..	£0	19½	s.			$4.72	
Bilbao Rubio ore†...	1	0½				4.96	
Cleveland No. 1 fdy.	3	9				16.70	
Cleveland No. 3 fdy.	3	6				15.97	
Cleveland No. 4 fdy.	3	5				15.73	
Cleveland No. 4 forge	3	4½				15.61	
Cleveland basic	3	5				15.73	
East Coast mixed....	3	14½	to	£3	15s.	18.03	to $18.15
East Coast hematite.	4	19				23.96	
Ferromanganese	15	10				75.02	
*Ferromanganese ...	15	5				73.81	
Rails, 60 lb. and up..	8	0	to	8	15	38.72	to 42.35
Billets	6	0	to	7	10	29.04	to 36.30
Sheets and tin plate bars, Welsh	6	5				30.25	
Tin plates, base box.	0	19¾	to	1	0¼	4.78	to 4.90
						C. per Lb.	
Ship plates	7	7½	to	7	17½	1.59	to 1.70
Boiler plates	11	10	to	12	0	2.48	to 2.59
Tees	7	12½	to	8	2½	1.65	to 1.76
Channels	6	17½	to	7	7½	1.49	to 1.59
Beams	6	12½	to	7	2½	1.43	to 1.54
Round bars ¾ to 3 in.	8	2½	to	8	12½	1.76	to 1.86
Steel hoops	10	15	and	12	10*	2.32	and 2.70*
Black sheets, 24 gage	11	5				2.43	
Black sheets, Japanese specifications	15	5				3.30	
Galv. sheets, 24 gage.	16	10, upward				3.57, upward	
Cold rolled steel strip, 20 gage	18	0				3.89	

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports

Foundry pig iron:(a)							
Belgium	£2	19s.	to	£3	0s.	$14.28	to $14.52
France	2	19	to	3	0	14.28	to 14.52
Luxemburg	2	19	to	3	0	14.28	to 14.52
Basic pig iron:(a)							
Belgium	2	19	to	3	0	14.28	to 14.52
France	2	19	to	3	0	14.28	to 14.52
Luxemburg	2	19	to	3	0	14.28	to 14.52
Coke	0	18				4.36	
Billets:							
Belgium	4	5				20.57	
France	4	5				20.57	
Merchant bars:						C. per Lb.	
Belgium	5	4½	to	5	6	1.13	to 1.15
Luxemburg	5	4½	to	5	6	1.13	to 1.15
France	5	4½	to	5	6	1.13	to 1.15
Joists (beams):							
Belgium	4	17½				1.06	
Luxemburg	4	17½				1.06	
France	4	17½				1.06	
Angles:							
Belgium	5	0				1.08	
⅛-in. plates:							
Belgium	6	7½	to	6	12½	1.38	to 1.43
Germany	6	7½	to	6	12½	1.38	to 1.43
⅜-in. ship plates:							
Belgium	5	17½				1.27	
Luxemburg	5	17½				1.27	
Sheets, heavy:							
Belgium	6	14	to	6	15	1.45	to 1.46
Germany	6	14	to	6	15	1.45	to 1.46

(a)Nominal.

different countries at the following classified prices:

Pig iron classed according to skin and to grain: No. 3 P. L., 345 fr. ($14.65); No. 4 P. L., 344 fr. ($14.61); No. 5 P. L., 343 fr. ($14.56); No. 3 P. R., 340 fr. ($14.44); No. 4 P. R., 336 fr. ($14.27); No. 5 P. R., 332 fr. ($14.10).

Pig iron classified according to guaranteed analysis: Iron containing from 4 to 5 per cent of Si, 363 fr. ($15.41); 3 to 4 per cent, 350 fr. ($14.86); 2.30 to 3 per cent, 343 fr. ($14.56); 1.70 to 2.30 per cent, 338 fr. ($14.35); 1.50 to 2 per cent, 333 fr. ($14.14); 1 to 1.70 per cent, 330 fr. ($14.01); these prices are quoted Longwy.

Export business is perhaps slightly intensified, but prices have felt the decrease of the French franc. It is true that we are in a good position as regards our competitors, but we have accepted 325 to 330 Belgian francs, or a decrease of 5 fr., which represents 348 to 353.75 French francs ($14.78 to $15.02).

In hematite iron, the need to refill order books obliges certain producers—notably of the South East—to look further afield for orders, but the entente prices do not seem to have suffered. The following prices, delivered region, will be maintained in November:

	Fr.	
Paris:		
Foundry iron	470	($19.95)
Forge iron	465	(19.75)
Nord and Pas de Calais:		
Foundry iron	470	....
Forge iron	450	(19.10)
East:		
Foundry and forge iron	460	(19.53)
Lyons:		
Foundry iron	440	(18.68)
Forge iron	450	....
Montlucon:		
Foundry iron	460	....
Forge iron	430	(18.25)
South East:		
Foundry iron	470	....
Forge iron	465	....

The premium to be paid for silicon is 5 fr. per ton for 2 and less than 3 per cent of Si; 10 fr. per ton for 3 and less than 3.50 per cent of Si; 20 fr. per ton for 3.50 per cent and over of Si.

As a result of the increase of manganese ore, the prices of spiegeleisen have been carried to 610 fr. $25.90) for the 10 to 12 per cent Mn and 750 fr. ($31.85) for the 18 to 20 per cent Mn, all over France.

For hematite forge iron, the prices vary following the contents of manganese; basis of 1½ to 2½ per cent of Mn in proportion of 5 fr. per semi-unit of manganese; above 6 per cent of Mn these irons are considered as spiegel irons, and from this rate to that of 11 per cent, prices vary according to the prices of forge and of spiegeleisen of 10 to 12 per cent Mn.

Ferroalloys.—Ferrosilicon is still quoted at 650 fr. ($27.60) for the 10 to 12 per cent Si and 865 to 870 fr. ($36.73 to $36.94) for the 25 per cent, delivered; the 45 per cent is rarer and dearer at 1195 fr. ($50.75) per ton, delivered. Ferromanganese registers a new increase of 50 fr. at 1750 fr. ($74.30).

Semi-Finished Products.—We have been able to take several good export orders from the Belgians and the Luxemburgers, but at prices, in pounds, lower than last week. Blooms are quoted at £4 2s. 6d. to £4 3s. ($20 to $20.10); billets, £4 6s. to £4 7s. 6d. ($20.80 to $21.15); largets, £4 9s. to £4 9s. 6d. ($21.55 to $21.65); all f.o.b. Antwerp.

Rolled Steels.—To refill their order books plants have accepted heavy tonnages at low prices. Now that they are assured of work for several weeks, or even months, they are showing slightly more reserve. Several interesting export orders have been secured, in spite of low German offers, but the Belgians and the Luxemburgers are dearer than we, often by 1s. to 1s. 6d. (24c. to 37c.). Beams are quoted at £4 18s. to £4 18s. 6d. (1.06c. to 1.07c. per lb.) and bars, £5 4s. 6d. to £5 5s. (1.12c. to 1.13c.).

Plates and Sheets.—Irregularity and weakness are dominant in this department, but especially in heavy thicknesses and large plates. Competition has decreased prices beyond all reason; it is thus that a price of 65 fr. (1.23c. per lb.) has been obtained for plates of 15 mm. (0.6 in.) and over in basic steel, and 2 fr. more for the open-hearth quality. Open-hearth steel construction quality fetches 71 fr. (1.35c.) at par Nord region. A rolling mill of the Ardennes quotes 74 fr. (1.40c.) delivered Paris area for sheet of 7, 6 and 5 mm. (0.28 in., 0.24 and 0.2 in.). In fine sheets, the situation is better; in the Nord they are delivering, in 3 or 4 weeks, 1.5 mm. (No. 16½ gage) sheets at 107.50 fr. (2.04c.); in Lorraine they ask 10 to 12 weeks to furnish, at 103 fr. (1.95c.), basic sheets of 1.5 mm. For export there is a new decrease on heavy sheets, which are now at £5 17s. to £5 17s. 6d. (1.26c. to 1.27c.).

Wire Products.—In wire rods there is hardly any change at home, but abroad, in spite of the decrease of the franc, we are holding with difficulty at £5 12s. 6d. to £5 13s. ($27.23 to $27.35) against the low offers of the Germans, whereas a fortnight or three weeks ago we quoted £5 15s. to £5 16s. ($27.83 to $28.07).

Iron and Steel Industry of Luxemburg

LUXEMBURG, Oct. 30.—The tendency of the iron and steel market has not changed much during the last month. The political, economic and financial uncertainties which continue to weigh on the markets of the world have brought about, among consumers, a lack of confidence prejudicial to the regular course of business. During the greater part of the month there has been a sliding of prices, slightly recovered since.

Toward the end of the month the market improved, thanks to the cessation of the strike in the Belgian mechanical industry, which reopened the outlets for the Luxemburg industry. On the other hand, the persistence of the iron and steel strike in Belgium has required the plants of the Grand Duchy to fill, in part, the deficit thus incurred in production, at the moment when the demand became more favorable, notably in British India, Dutch Indies and Japan.

Prices Slowly Falling

During October, considering the satisfactory state of order books, Luxemburgers found themselves in a favorable situation, as they had not followed the price decreases in Belgium and Lorraine. But the accentuated depreciation of the French franc has brought about a recrudescence of French competition at Antwerp. Then, order books becoming empty, the Luxemburgers commenced to find it necessary to refill them. From this fact prices decreased. Thus foundry iron is now quoted at 330 and even 325 Belgian francs, ($15.05 and $14.80) f.o.b. Antwerp; basic iron, 315 to 320 fr. ($14.30 to $14.55). In semi-finished products, neither the Belgians nor the Luxemburgers can stand against the Lorrainers. They content themselves with quoting: Blooms, £4 4s. to £4 5s. ($20.33 to $20.57); billets, £4 8s. ($21.30); largets, £4 10s. ($21.78). In the steel department German competition is added to that of the Lorrainers; bars are quoted at £5 5s. to £5 5s. 6d. (1.13c. to 1.14c. per lb.); beams, £5 1s. (1.09c.); wire rods, £5 14s. ($27.59).

Belgian Iron and Steel Output in September

BRUSSELS, BELGIUM, Nov. 6.—On Sept. 30 the number of Belgian furnaces in blast was 33, the same as on Aug. 31. Monthly average in 1924 was 46 and monthly average in 1913 was 54.

Output of pig iron in September was 170,280 tons, against 166,300 tons in August, 234,000 tons monthly average in 1924 and 207,058 tons monthly average in 1913.

Production of raw steel (not including direct castings) totaled 159,050 tons in September, against 147,100 tons in August, 231,622 tons monthly average in 1924 and 200,398 tons monthly average in 1913.

Direct castings in September totaled 5530 tons, against 3200 tons in August, 6755 tons monthly average in 1924 and 5154 tons monthly average in 1913.

Output of finished steel in September was 134,010 tons, against 121,120 tons in August, 198,216 tons monthly average in 1924 and 154,922 tons monthly average in 1913.

"Put a Profit In Every Bid"

(*Continued from page* 1388)

such action as may be necessary to assure an extended market and its intensive development in order that distributor may meet his responsibility with assurances that his market is ever active.

"We hear a lot about prices, competition and costs, which represent what might be termed the strictly 'internal' questions, which all business must encounter. The other problems which we may properly designate as 'external' are of far greater importance when the volume of business and profits are considered, yet they are oftentimes minimized.

"The right policy is first to approach the 'external' influences and after they are adjusted, experience has demonstrated that the 'internal' difficulties become less annoying."

J. L. Kimbrough, president Indiana Bridge Co., Muncie, Ind., and president of the American Institute of Steel Construction emphasized this need of market development in his annual address and brought out the point that real accomplishment in this field demanded the expenditure of more money than the institute had been able to command up to this time. He questioned whether the 5c. per ton assessment on production indicated a real desire on the part of the industry to protect its own future and urged the appropriation of a larger sum to conduct research, advertise and develop new uses for structural steel. Largely through the presentation of the program for market development by President Kimbrough, treasurer and vice-president W. M. Wood and Executive Director Charles F. Abbott, the convention voted to increase the assessment to any point deemed advisable by the board of directors up to, but not exceeding, 25c. per ton.

How the Money Will Be Spent

PRESIDENT Kimbrough brought out the fact that contributions to the funds of the institute would be continued by the structural steel manufacturers.

Some indication of how the additional funds may be expended were given in the report of the committee on Improvement in Selling Methods, read by Chairman Karl E. Vogel, Omaha Steel Works, Omaha. A number of definite suggestions were made, the most important being as follows: Employment of a competent publicity representative to carry out and develop the publication of articles furthering the use of structural steel; the publication of a periodical bulletin or magazine for the same purpose; the furtherance of local associations working under the guidance of the national institute; a forceful campaign of paid advertising in trade and national magazines; an increase in the work done in connection with presentation of structural steel merits to engineering students; the employment of local engineers to aid owners and architects in structural steel specification; and particularly, the preparation of a standard sales manual.

The need for a sales manual is becoming more acute every year and while some work has already been accomplished in its preparation, the completion of this much-needed standard for selling methods will require much additional time and money.

The impossibility of adequately preparing a standard cost system for use in the industry without considerable further study was also indicated by the report of Chairman George E. J. Pistor, Hay Foundry & Iron Works, and it was the consensus of opinion that this is one of the items on which time and money could profitably be spent.

The expenditure of a portion of the institute's funds to continue the work of the traffic committee was also urged in the report submitted by Chairman M. T. S. Orner, Pittsburgh Bridge & Iron Co., Pittsburgh.

Too Many Laws

HON. George H. Moses, United States senator from New Hampshire, discussed the relation of Government to industry at the annual banquet. We are afflicted with too many laws, he said. "I never make a trip by Pullman or steamship without meeting at least one example of that type of individual who says 'there oughta be a law about it.'" The result is that even lawmakers are confused as to the exact interpretations of the law. Conflicting laws are increasing in number at an alarming rate and the heavy hand of Government is becoming a very real burden on the business. With one out of every eight individuals of adult age in some way connected with a Government payroll, it is not difficult to see that the tax question is really a question of too much paternalism in Government. Consider the workman who gets up in the morning after sleeping on a mattress that has probably been inspected by some Government official, eats a breakfast of bacon and eggs which have been passed on by inspectors paid by the Government, rides to work in a street car or subway supervised by State or city officials (paid for their supervision) and works in a factory the construction of which as well as the ventilation, lighting, sanitation and other requirements have been O. K'd by an official on the public payroll. We have too many laws and too much regulation."

Steel in Earthquake Zones

JOHN L. CLYMER, manager Northern California Division, California Institute of Steel Construction, described the havoc wrought among reinforced concrete buildings at Santa Barbara during the recent earthquake and showed a number of striking stereopticon slides. He pointed out that the one structural steel building of any height in the city was uninjured and recommended steel for all buildings of height in earthquake regions.

Albert C. Martin, architect, Los Angeles, also presented stereopticon views of the Santa Barbara devastation and drew some interesting conclusions in regard to the comparative worth of reinforced concrete and steel frame construction. In connection with the relative costs of the two types of construction he said: "One theater balcony I designed holding about 1000 cost (in reinforced concrete) about $1,500 less than if I had used steel. The contractor assures me he lost the $1,500. I know my client lost several weeks of time. I have just awarded the steel contract for a $550,000 eight-story hospital at a price of $40,000. I figure the additional cost over concrete at $18,000 or 3⅓ per cent. Many authorities agree that 29 years is the average life of a modern "Class A" building and some allowance should thus be made for difference in cost of wrecking and the salvage value. The great advantage of a steel frame is when changes in structures become necessary. Last but not least the insurance rate on steel frame is less than on reinforced concrete."

Other Papers

B. C. COLLIER, president Cement-Gun Co., Allentown, Pa., showed a number of slides illustrating the use of Gunite in fireproofing structural steel. He contended that by the proper use of this material with structural steel in place of reinforced concrete, somewhat lighter and less expensive members could be used, thus saving cost and ultimately increasing the use of structural steel.

R. A. Storm, manager structural department, the Morgan Engineering Co., Alliance, Ohio, showed slides demonstrating the successful use of the electric arc weld in structural steel work. His remarks will be presented in a later issue of THE IRON AGE as will the paper presented by A. L. Spencer, Jr., Pittsburgh Screw & Bolt Co., Pittsburgh, concerning "An Investigation to Determine the Cause of Rivet Failures in Driving."

Officers Reelected

PRESIDENT J. L. Kimbrough, Vice-president and Treasurer W. M. Wood and Executive Director Charles F. Abbott were unanimously reelected to office. N. W. Warren, Dominion Bridge Co., Ltd., was elected a director to fill the office of E. S. Mattice, and the following new directors were also elected: W. S. Mosher, president Mosher Steel & Machinery Co., Dallas, Tex., Reese Llewellyn, president Llewellyn

Iron Works, Los Angeles, and C. Edwin Michael, president Virginia Bridge & Iron Co., Roanoke, Va. Mr. Michaels was also elected second vice-president of the institute.

More than 200 members stayed through to the last session and approved the selection of White Sulphur Springs for the location of the next convention which will take place the last week in October, 1926.

The Need of Research

Dr. George F. Swain, professor of civil engineering, Harvard University, who was to present a paper on "The Need of Further Technical Research in the Structural Steel Industry," fell ill while at the convention and the address was read in his absence. It emphasized the necessity of asking four questions about any intended research: Can you define the object of the research? Is it possible to accomplish the object, even partly? Is the object worth while or as Professor Sumner of Yale would say, "What of it"? Can the investigation be made in such a way as to yield definite results or even indications that there are trustworthy guides? His paper mentioned a few of the matters about which the structural steel industry is still uncertain as objects for possible research:

"In regard to steel beams the tendency of the upper flange to deflect laterally is not well understood, neither is the ability of the web to resist shearing. Tests have been made of both these matters, but the results are unsatisfactory. A steel beam is tested and it fails by lateral deflection of the top flange. The following questions may be asked: Was the flange originally absolutely straight? Was the load applied absolutely in the plane of the web, i.e., without any lateral component? Could the supports tip laterally, even minutely? And what does the test show anyway about an actual beam whose ends are not free, as in the test, but are solidly riveted to a column?

"Of two beams as nearly alike as it is possible to get them, one fails by lateral bending and the other by web crippling. What inferences can be drawn? None, very likely. Variations in quality of material are a fruitful source of uncertainty. This is particularly true of wood, where variations in grain, moisture, etc., may cause wide differences. How, for instance, can a reliable column formula be derived from tests? Prof. H. W. Walsh of the University of Cork, Ireland, has suggested expressing the strength of each column tested as a percentage of the ultimate of the material in that particular column, and in this way he has removed much of the variability in the tests, and left more clearly evident the effect of slenderness ratio. The suggestion is a good one, and shows how it is sometimes possible to investigate tests by methods that will remove the effect of some undesired variables. If the column committee of the American Society of Civil Engineers had expressed the strength of each column tested as a percentage of the yield point of the material in that column, the results might have been better, but this was not done—nor has it ever been done, so far as I know, in this country."

Profitable Problems for Research

THE report of the committee on technical research, Aubrey Weymouth, chairman, reads in part as follows:

In the past, steel construction required no brief; as the most reliable material of construction steel sold itself. But the ever increasing costs of the past few years have brought about an economic opportunity for the wider use of other materials in structures where once only steel would have been considered. To meet this condition it is necessary that we investigate our present methods of construction to determine whether we are burdening our costs with an inheritance of unnecessary requirements in fabrication and whether present-day combinations with other materials of construction can be improved upon with a view to reducing costs and thereby increasing the volume of steel construction.

The practical functioning of the institute in this field would be the establishment of a research department under the direction of a committee. As the committee would be composed of institute members who would have little time for actual research work, their efforts would have to be confined to formulating problems, the solution of which would have to be entrusted to other agencies under their direction.

This of course suggests the utilization of the existing laboratories of those technical schools which are dedicated to research as well as to teaching. As illustrative of the aid which it might render the steel industry it may be interesting to give a few of the tasks which might be performed by technical research.

No doubt an immense amount of information has been accumulated by the members of the institute in the form of experimental data including tests of rivets and bolts, the value of beam seats with and without stiffeners, tests of what might be called standard wind brace connections and the behavior of light steel structures under stress. The first and most important duty of a research department would be to collate all this information with a view to having it available for reference or to broadcast it for the benefit of designers and users of steel. After this was done it would develop what problems remained to be solved.

Then there are certain assumptions of design, the validity of which may be said to be still in dispute. It is doubtful if the wind bracing of the high building has ever been placed on a rational basis. Extensometer measurements on the steel frame of a building under wind stress would be of value in determining the stresses produced in the steel frame and the inertia value of the other materials of construction in the building.

Are our assumptions with regard to the fireproofing of steel correct? Should we not join in investigations to see if the basic principles are correct? Certainly the high dead loads that present methods project upon the steel frames are a great hardship. Frequently the dead load will be more than twice the live load to be carried. And if the present requirements are proved to be necessary, should we not join in the movement which has been undertaken to promote the proper recognition by the engineering profession of the increased strength of structural steel when encased in concrete?

Whatever may be the attitude of the fabricating industry at the present time there is no question but that the process of welding forces itself into the field for consideration. Will shop layouts be affected by the development of this process of fabrication? If the claims of the manufacturers of welding equipment are true with respect to savings in cost, does this not necessitate investigation and cooperation? Are we in sight of the day when the voice of the pneumatic riveter is to be hushed?

One of the greatest labor savers produced in recent years is the oxy-acetylene torch. However, there is very little information available as to the effect it has upon the material. In the absence of such information we even find specifications prohibiting its use. This seems to demand research by the institute in order that the limitations and restrictions to its use may be established only after authoritative experiments and tests have been made and the results published, so that the industry may obtain the greatest benefits from it as a labor saver.

It would be of great importance to the industry to cooperate with the Society for Testing Materials to determine whether the present requirements for subpunching and reaming and the additional expense involved are justified with the standard mill material of the present day.

PIG IRON CAPACITY ALSO

Enlarged Scope of Institute Committee on American Steel Works Survey

As heretofore announced in THE IRON AGE, the American Iron and Steel Institute has appointed a committee to make a survey of the steel ingot capacity of the United States. This action was taken on the initiative of John A. Topping, chairman of the Republic Iron & Steel Co., Mr. Topping's view being that the steel making capacity of the various producing companies, as it has been stated in the annual report of the institute for a number of years, is considerably in excess of the effective capacity. The committee consists of John A. Topping, chairman; James A. Farrell, president United States Steel Corporation, and E. G. Grace, president Bethlehem Steel Corporation. Since the appointment of the committee the directors of the institute have decided to extend the survey to cover also the pig iron capacity of the country and the capacity for the production of steel castings. The committee has prepared a questionnaire in each of the three lines—steel works, blast furnaces and steel foundries—the purpose being to secure uniformity in the method of computing capacity used by the reporting companies.

Acquires St. Louis Blast Furnaces and Coke Ovens

The Midland Coke & Iron Corporation, a Delaware corporation, has acquired the property, consisting of blast furnaces, coke ovens, by-products plant and other facilities at Granite City, Ill., of the St. Louis Coke & Iron Co.

The board of directors of the new company is composed of John Henry Hammond of Brown Brothers, New York; Alfred J. Kieckhefer, president National Enameling & Stamping Co.; C. D. Marshall, president of the Riter-Conley Co.; Breckenridge Jones, chairman of the board Mississippi Valley Trust Co.; Leonard A. Busby, president Chicago City Railway Co.; Clement Studebaker, president Illinois Light & Power Co.; F. J. Lewis, James Duncan, George W. Buckingham and W. G. Maguire.

The new officers chosen are: Leonard A. Busby, chairman of the board; W. G. Maguire, president; D. M. Curran, vice-president; Andrew Mann, treasurer; P. D. Nelson, secretary; George T. Buckingham, counsel.

A second blast furnace is to be constructed, providing for full utilization of the output of the company's coke ovens.

Sheet Mill Wages Remain Unchanged

YOUNGSTOWN, Nov. 17.—Tonnage rates of sheet and tin mill workers in mid-Western mills operating under the sliding scale wage agreement of the Amalgamated Association of Iron, Steel and Tin Workers will continue unchanged at 28½ per cent above base for November-December, following the bi-monthly settlement last week.

Examination of sales sheets on shipments for the 60 days ended Oct. 31 disclosed an average selling price of 3.10c. per lb., for Nos. 26, 27 and 28 gage black sheets shipped by subscribing interests. This average is unchanged from that disclosed at the settlement two months ago, and the tonnage rate therefore continues for the last two months of this year on the same basis as for September-October.

The volume of shipments for the period covered by the examination was substantially in excess of that for the preceding 60 days. An increase in rates paid sheet and tin mill workers may be expected for the first two months of 1926, owing to higher prices for sheets which have developed in the meantime.

James H. Nutt, Youngstown, secretary Western Sheet and Tin Plate Manufacturers Association, acted for employers, and M. F. Tighe, Pittsburgh, president of the Amalgamated association, for the employees.

BETTER JAPANESE INQUIRY

Gas Company Inquires for 700,000 Ft. of Pipe—Imported Steel

NEW YORK, Nov. 17.—The rising American iron and steel markets are evidently stimulating the Japanese merchants and large companies into greater activity, but the Chinese and South American markets continue quiet. In addition to the two current tin plate inquiries from Japan, bids on which were opened last week, there is a request for prices from Yokohama municipality on 350 tons of I-beams. American standard specifications being requested here and British standard specifications on the inquiries forwarded to British sellers. The Imperial Government Railways in Japan have been taking bids on 150 tons of 90-lb. rails, A. R. A. specifications, Type B. A recent inquiry from an industrial user of rails in Japan for 5 miles of 25-lb. sections was awarded to Mitsui & Co., New York.

Competition for the Nippon Oil Co. tin plate totaling 30,000 base boxes is reported to have been keen among the exporters, but the American mills, with one exception, only quoted on part of the total tonnage, apparently being satisfactorily booked with domestic business. The current market on export tin plate is reported as ranging from $5.55 to $5.60 per base box, c.i.f. Japanese port, with British makers quoting about 10c. per box less. From past experience, however, it is believed by exporters, that the Nippon company prefers the American product. The 10,000 base boxes of tin plate for the Kioto Oil Co. are reported awarded to the Mitsubishi Shoji Kaisha, New York. The Tokio Gas Co. has withdrawn its recent inquiry for 300,000 ft. of gas tubing and sent out a revised inquiry calling for 720,000 ft. Bids have been opened but no award has been announced.

Prices of American importers for open hearth and intermediate grade Thomas steel bars continue unchanged at about 1.90c. per lb., c.i.f., duty paid on open hearth and 1.70c. to 1.75c. per lb., base, c.i.f., duty paid on Thomas steel. A fairly large volume of inquiry that may develop into orders is being quoted upon and numerous purchases of small lots, details of which are not made public, are reported by importers. A manufacturer of agricultural machinery in Kentucky has been securing quotations on a sizable tonnage of material. An importer dealing with German connections mentions the sale of several hundred tons of medium weight rails to a Southwestern user.

Construction will soon begin on 1400 kilometers of railroad in Spain, part of the retracking and extension program, according to cabled information received by the Department of Commerce from Madrid. Although, in the purchase of rolling stock and construction materials, local industry will be given preference, the project has led to inquiries for large quantities of foreign materials.

Steel Pipe by the De Lavaud Process

The successful production of seamless steel pipe by the De Lavaud centrifugal process is claimed to have been perfected as a result of extensive experiments conducted by the John Brown Co., Ltd., Sheffield, England. The De Lavaud machine, as used in this country for the production of cast iron pipe, has been used as the basis of these experiments. The patents covering the new process are controlled by the International De Lavaud Mfg. Co., which owns all patents covering every application of this process to the centrifugal casting of metals in all countries except Canada and Greece. In this country the rights to the process for producing cast iron pipe are owned and leased by the Centrifugal Pipe Process Co., New York, and by mutual agreement the new processes for steel pipe developed by the British company will be controlled in the United States by the American company. It is stated that the process has reached the commercial stage but that no negotiations have yet been made with any American companies for the use of the new application of the process.

Machinery Markets and News of the Works

BUYING WELL SUSTAINED

Machine Tool Manufacturers Continue to Get Good Run of Orders

Business Comes from Many Sources with Automobile Industry in the Lead

FURTHER buying by automobile manufacturers, together with a fairly substantial volume of machine tool orders from miscellaneous sources, has given the machine tool industry another good week. The Chrysler, Buick, Cadillac and Nash companies were purchasers of fair-sized lots of machines. The Continental Motor Corporation is reported to have placed a substantial order for milling machines. Parts and accessory manufacturers are also buying. An outstanding order was for 20 turret lathes received by a Cleveland manufacturer from the Delco Light Co., Dayton, Ohio. The Eaton Axle & Spring Co., Cleveland, has made additional purchases.

Orders have been placed by the International Harvester Co., Chicago, and the A. O. Smith Corporation, Milwaukee, with further requirements pending. The Illinois Steel Co. has completed the purchase of a list of tools for its Gary, Ind., works. The Youngstown Sheet & Tube Co., which bought a number of items for a machine shop at its works at Indiana Harbor, Ind., will ask for new bids on other machines on its list.

While there has been no railroad buying of outstanding importance, machine tool builders are getting a fair number of orders for single machines from the railroads. The Norfolk & Western list of about 80 tools may be purchased soon.

Deliveries of some types of tools have lengthened slightly. An advance of about 7½ per cent on drilling machines has been announced.

New York

NEW YORK, Nov. 17.

THERE has apparently been a slight let down in the volume of new inquiry for machine tools, compared with activity in the closing weeks of October and the first week of November. Most of the current business is still coming from makers of automobile parts and accessories with the International Motor Co., New Brunswick, N. J., still active.

Recent purchases of equipment, usually single tools, include the A. O. Smith Corporation, Milwaukee, purchaser of 17 5-hp. grinders from the Niles-Bement-Pond Co. and the following purchasers of Pratt & Whitney equipment: Hannum Mfg. Co., Milwaukee, 6 worm grinding machines; American-La France Fire Engine Co., Elmira, N. Y., a 16-in. geared head lathe and a 6-in. thread milling machine; International Motor Co., New Brunswick, N. J., a 16-in. geared head lathe.

Victor de Jurag, representing the Agrarian Association of Central and Eastern Europe, which covers the countries of Jugo-Slavia, Austria, Hungary, Bulgaria and Czechoslovakia, wishes to get in touch with manufacturers of gasoline engines for motive power, engines with attachments for lumber cutting, and with plants, preferably near New York, that will make plow blades and other agricultural implements according to specifications. He is also interested in buying nails, bolts and screws. Mr. Jurag's address is 115 West Sixteenth Street, New York. He plans to spend a month in the United States.

The Standard Sanitary Mfg. Co., Bessemer Building, Pittsburgh, manufacturer of enameled iron and other sanitary ware, will make extensions and improvements in its five-story factory branch and distributing plant, 50 x 270 ft., at Long Island City, to cost more than $50,000. Walter S. Timmis, 315 Fifth Avenue, New York, is architect.

The W. & L. Garage Co., Inc., 25 Delancey Street, New York, has filed plans for a three-story service, repair and garage building, 75 x 100 ft., at 224-28 Mulberry Street, to cost $100,000. Samuel Witkin is president.

The Board of Education, Park Avenue and Fifty-ninth Street, New York, has plans under way for a boys' trade and vocational school in the Bronx, consisting of 24 shops for manual training instruction, estimated to cost $1,170,000. In a girls' trade school to be located in Brooklyn, to cost $2,015,000, five power shops will be installed for light machine work. William H. Gompert, 171 Madison Avenue, is architect.

Contract has been let by the Board of Transportation, city of New York, 49 Lafayette Street, to the P. J. Carlin Construction Co., Grand Central Terminal, for main repair shops for the municipal subway system, at Avenue X and Shell Road, Coney Island, at $1,700,000.

The Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y., has awarded a general contract to the Austin Co., Chicago, for a two-story and basement addition, 86 x 160 ft., at its plant at Rock Falls, Ill., to cost $55,000.

The Brighton Marine Repair Yard, foot of Richmond Terrace, Port Richmond, S. I., owned jointly by the Lehigh Valley and Lackawanna Railroads, will proceed with the installation of a floating dry dock, 330 ft. long, 80 ft. wide and 30 ft. deep, with additional shop equipment and facilities. The dry dock has been in course of building at the plant of the Brewer Dry Dock Co., Mariners Harbor, S. I.

The De Forest Phonofilm Corporation, 318 East Forty-eighth Street, New York, Lee De Forest, president, manufacturer of electrical apparatus, has leased a one-story building, 52 x 60 ft., to be erected at 315-19 East Forty-seventh Street, for a new shop. It will cost about $22,000.

The Wright Aeronautical Corporation, 238 Lewis Avenue, Paterson, N. J., has awarded a general contract to the Spaulding Construction Co., 127 East Forty-sixth Street, New York, for an addition at Hasbrouck Heights, N. J., for hangar, repair and operating service, to cost $100,000. Lockwood, Greene & Co., 100 East Forty-second Street, New York, are architects and engineers.

The Standard Oil Co. of New Jersey, 26 Broadway, New York, has filed plans for extensions in its refinery at Constable Hook, Bayonne, N. J., with cracking machinery for gasoline production, pumping plant and other structures, to cost $577,000.

The Lionel Corporation, 605 South Twenty-first Street, Irvington, N. J., manufacturer of electric toys, has acquired a tract of 12 acres in Hillside Township, and plans the erection of a new factory, to cost more than $75,000.

Tomkins Brothers, 74 Passaic Street, Newark, builders' materials, have awarded a general contract to Hugh Getty, Inc., 359 West Twenty-sixth Street, New York, for a one-story addition to its storage and distributing plant on Willow Street, Jamaica, L. I., 75 x 135 ft., to cost about $115,000 with equipment.

The United States Piston Ring Co., 1206 South Grove Street, Newark, has filed plans for a one-story addition to cost about $15,000.

The Board of Education, Essex County Vocational Schools, 30½ Nelson Place, Newark, has asked bids on a general contract for an addition to the County trades school at 294 Norfolk Street, to cost $100,000 with equipment. Robert O. Beebe is director.

Ovens, power equipment, conveying and other machinery will be installed in the three-story plant, 130 x 160 ft., to be constructed at Irvington, N. J., by the Drake Bakeries, Inc., 71 Clinton Avenue, Brooklyn, to cost about $125,000. Seeburger & Rabenold, 1524 Chestnut Street, Philadelphia, are architects. N. E. Drake is president.

Fire, Nov. 7, destroyed a portion of the plant of the United Radio Corporation, 235 Elizabeth Avenue, Newark, manufacturer of radio equipment and sets, with loss reported at $70,000 including machinery. Plans for rebuilding are under consideration. Edward Felsberg is president.

The Northern New Jersey Oil Co., 56 Central Avenue, Orange, N. J., has acquired property at 395-407 Riverside Avenue, Newark, with frontage on the Passaic River, for a new oil storage and distributing plant, plans for which will soon be drawn. Spaulding Frazer is one of the heads of the company.

The Diamond Electric Specialties Corporation, 101 South Orange Avenue, Newark, has leased property at 12-20 Runyon Street, for a new local plant.

The J. Nazeley Co., 571 Hudson Street, New York, manufacturer of radio equipment, has leased a three-story factory at 1824 Park Avenue, Weehawken, N. J., for a new plant.

The F. N. DuBois Co., Newark, manufacturer of plumbing fixtures, lead traps, pipe, roof boxes, etc., has awarded contract to the Austin Co. for the construction of five buildings ranging from 90 x 160 ft. to 50 x 120 ft. Construction and all material purchases will be handled through the Philadelphia office of the builder.

The Tannin Corporation, 100 East Forty-second Street, New York, manufacturer of extracts for tanning leather, is considering building a new plant, location for which has not yet been determined.

The Audalion Co., Inc., 318 East Forty-eighth Street, New York, was recently organized to manufacture a loud speaker without horn, cone or diaphragm, invented by Dr. Lee de Forest. The factory, which is now fully equipped, is at Skillman Avenue and Honeywell Street, Long Island City, N. Y. Contracts for the manufacture of materials entering into the company's product have been closed. Officers of the Audalion Co. are: Lee de Forest, president; B. F. Waddell, vice-president and general manager, and William E. Waddell, secretary and treasurer.

Philadelphia

PHILADELPHIA, Nov. 16.

THE Philadelphia Shovel Co., Philadelphia, recently organized with a capital of $100,000, Lynford Rowland, Jr., Castor Avenue and Foulkrod Street, treasurer, has awarded a general contract to W. N. Lindsay & Co., 900 Harrison Street, for a new plant at Tacony and Tanger Streets to cost $50,000.

The General Electric Co., Witherspoon Building, Philadelphia, has asked bids on a general contract for a one-story addition to its plant at Sixty-eighth and Glenmore Streets 28 x 250 ft., to be equipped as a galvanizing works. Harris & Richards, Drexel Building, are architects.

The Pennsylvania Range Boiler Co., Philadelphia, has acquired property at the corner of Twenty-fourth Street and Washington Avenue for a new plant.

Eugene Carraine, Philadelphia, operating a factory at 1620 Mifflin Street, for the manufacture of cardboard specialties, is asking bids on general contract for a new plant on N Street to cost $35,000.

The Philadelphia Engineering & Machine Co., 1130 Race Street, Philadelphia, has awarded a general contract to D. Henwood, 717 East Sixty-third Street, for a one-story plant. A new boiler house will also be built, the entire work to cost $50,000.

The Scott Paper Co., Chester, Pa., is disposing of a preferred stock issue to total $500,000, a portion of the fund to be used for extensions and improvements. It is purposed to construct a new plant unit, with the installation of general paper-making and semi-automatic finishing machinery to increase the output about one-third. A. H. Scott is president.

The Pennsylvania Railroad Co., Broad Street Station, Philadelphia, is considering the electrification of its lines to Haddonfield, N. J., and vicinity, including the branch to Berlin. The work will include steel poles, substation equipment, feeder lines, etc. Estimates of cost are being made.

The Coplay Cement Mfg. Co., Coplay, Pa., is said to be considering an addition to its mill to cost in excess of $70,000. W. E. North is chief engineer.

The Enterprise Coal Co., Shamokin, Pa., will soon begin the construction of a new coal breaker at its local properties with capacity of 2000 tons per day. It will cost more than $150,000 with machinery.

The Board of Education, Jenkins Township School District, Port Blanchard, Pa., William H. Muir, Main Street, secretary, is considering the installation of manual training equipment in a proposed two-story and basement junior high school to be erected near Pittston, Pa., to cost $175,000. Ralph M. Herr, Simon Long Building, Wilkes-Barre, Pa., is architect.

The Ballinger Co., Twelfth and Chestnut Streets, Philadelphia, architect and engineer, has been engaged by the Viscoe Co., Marcus Hook, Pa., to prepare plans for its proposed artificial silk mill at Parkersburg, W. Va., to include a power house, pumping station, machine shop and other mechanical buildings. The entire project will cost approximately $1,000,000.

The Dexter Portland Cement Co., Nazareth, Pa., has acquired the property and business of the Penn-Allen Portland Cement Co., Penn-Allen, near Nazareth, including mill and quarries. The new owner will make extensions and improvements in equipment installation to increase the output to about 5000 bbl. per day. Waste heat boilers and other power apparatus will be installed. The plant of the Industrial Limestone Co., Hecktown, Pa., secured in the deal, will be improved and operated.

The Pennsylvania Edison Co., Easton, Pa., operated by the General Gas & Electric Corporation, Easton, Pa., has acquired the plant and property of the Saylorsburg Light & Power Co., Saylorsburg, Pa., including a hydroelectric power station on Saylors Lake. The new owner plans extensions and improvements in this district, including additional equipment installation. Headquarters of the parent company are at 50 Pine Street, New York.

The Splitdorf-Bethlehem Electrical Co., Bethlehem, Pa., recently formed to take over and expand the Bethlehem Spark Plug Co., Bethlehem, Pa., is arranging for the immediate acquisition of the Splitdorf Electrical Co., 392 High Street, Newark, N. J., and will consolidate with its organization. Plans are under way for extensions. E. H. Schwab is chairman of the board, and M. W. Bartlett, president.

New England

BOSTON, Nov. 16.

A SLOWING up in machine tool sales is noted in this market, transactions the past week being not more than 50 per cent of the previous week. Buying is mostly of single machines, with used tools outnumbering new equipment. Recent sales include a No. 4 Cincinnati milling machine, a 10 x 50 in. Norton grinder, a radial drill, four presses and a 14-in. lathe, all used equipment. One local firm sold a broaching machine for export to France. Houses handling new equipment report a noticeable tightening in delivery dates. On some makes of shapers deliveries cannot be made until well after Jan. 1; certain types of grinding machines are sold ahead until March, while turret machine deliveries have been moved up to not earlier than Jan. 1. The most encouraging feature is the continued moderately large number of new inquiries which are coming from firms not recently in the market.

The New England machine tool industry is in a much better position than a month ago. Working schedules at all but a few plants have been extended, and in some instances are operating at capacity. Among the most active are those making grinding machines, automatic equipment, lathes and shapers. In addition, metal working shops also are busier. In New Hampshire, where improvement has been backward, business is considerably better than a year ago.

The foundry of the Julian D'Este Co., Charlestown, Boston, brass and bronze castings, recently was badly damaged by fire. Replacements will shortly be made.

Work has started on a three-story, 89 x 100 ft. manufacturing plant for Brown Brothers, Inc., Gardner, Mass., chair manufacturer. Plans are private.

Bids have closed for a proposed one-story and basement factory, 65 x 231 ft., with ell, 42 x 105 ft., at Forest Hills, Boston, for the Atlantic Screen & Wood Products Co., Lockdale Road, Atlantic, Mass. James T. Ball, 175 Dartmouth Street, Boston, is the architect.

The Woburn Iron Foundry, Fowle Street, Woburn, Mass., last week was badly damaged by fire. It is proposed to rebuild at an early date.

Bids have been taken for a number of buildings, including a machine shop, to be erected on Brainard Field,

The Crane Market

THE volume of inquiry for electric overhead cranes continues satisfactory, but interest in the purchase of locomotive cranes has apparently diminished slightly since the first of the month. While activity in overhead cranes in the New York district is confined to inquiries for single pieces of equipment, the Pittsburgh and Cleveland districts have reported two small lists of electric cranes in the past week. The Carnegie Steel Co., Pittsburgh, has asked for prices on three more cranes for its Homestead works, one 25-ton overhead, one 15-ton overhead and a 10-ton wall crane. Pittsburgh sellers are reported to be notifying prospective purchasers of cranes that prices outstanding will not be good after Dec. 31. In the Cleveland district, the Youngstown Sheet & Tube Co., Youngstown, is in the market for eight to 10 electric traveling cranes for its new tube mill. The Phoenix Iron Co., Phoenixville, Pa., is inquiring for three cranes, a 10-ton, a 30-ton and a special soaking-pit crane.

Business still pending in the New York district includes the three gantry cranes for the Delaware, Lackawanna & Western, the stationary gantry crane for the United Electric Light & Power Co., New York, asked for by Thomas E. Murray, consulting engineer, and the two 2-ton overhead cranes for the West Philadelphia plant of the General Electric Co. The International Railways of Central America, operating in Guatemala, recently in the market for a 20-ton, 60-ft. span, 4-motor, overhead crane, has purchased from a German builder.

The Western Machinery Co., 900 North Main Street, Los Angeles, is inquiring for two 30-ton, 4-motor overhead cranes with 10-ton auxiliaries, two 15-ton, 3-motor cranes, two 10-ton, 3-motor cranes and two 5-ton, 2-motor floor operated cranes.

Among recent purchases are:

General Electric Co., Schenectady, N. Y., a 10-ton, 36-ft. 6-in. span overhead crane for Schenectady, from the Niles-Bement-Pond Co.

Parish Mfg. Co., Reading, Pa., a 10-ton, 71-ft. span, electric overhead crane from the Niles-Bement-Pond Co.

New York Transit Co., New York, a 7½-ton, 45-ft. span electric crane from Maris Brothers.

Central Railroad of New Jersey, a 20-ton electric overhead crane for the Elizabethport shops, from the Whiting Corporation.

Gulf Creosoting Co., Mobile, Ala., two 15-ton locomotive cranes from the American Hoist & Derrick Co.

Gulf Refining Co., Bayonne, N. J., a 3-ton, 20-ft. span, single I-beam hand power crane from Alfred Box & Co.

Anderson Iron Works, 5844 Loomis Street, Chicago, a 10-ton, 80-ft. span, 5-motor, and a 5-ton, 50-ft. span, 5-motor crane from the Northern Engineering Works.

Phoenix Utility Co., 71 Broadway, New York, a 5-ton chain block with overhead rail and a 2½-ton electric monorail hoist, reported purchased from Maris Brothers.

Standard Seamless Tube Co., Economy, Pa., a used 20-ton, 59-ft. 6-in. span, 4-motor Milwaukee overhead crane in the plant of the Philadelphia Roll & Machine Co., purchased from T. B. MacCabe, 2641 Christian Street, Philadelphia.

Lansdale Foundry Co., Lansdale, Pa., a 3-ton, 19-ft. span, 2-motor, used Niles crane from T. B. MacCabe, Philadelphia.

Monitor Furnace Co., Cincinnati, two 2-ton, 41-ft. 6-in. span, 3-motor, used Shepard cranes from T. B. MacCabe, Philadelphia.

Oliver E. Lutz, Portland, Ore., a 5-ton, 41-ft. 6-in. span, 3-motor used P & H crane from T. B. MacCabe, Philadelphia.

Hartford, Conn., for the 118th Observation Squadron, United States Navy. Payne & Keefe, Manwaring Building, New London, Conn., are the architects.

The William Olderman Co., Howard Avenue and Spruce Street, Bridgeport, Conn., operating a smelting and refining plant, has been incorporated under Connecticut laws with a capitalization of $50,000. In addition to its regular business, the firm proposes to engage in brass casting and the smelting of non-ferrous metals.

Plans have been filed by the Henry Weyand Co., Waterbury, Conn., manufacturer of sheet metal products, for a three-story addition on Brown Place to cost $45,000. Buildings now on site will be razed.

The Electric Specialty Shop, South Street, Stamford, Conn., has plans for a two-story factory, 40 x 104 ft., for which a general contract will soon be let.

The Scovill Mfg. Co., Waterbury, Conn., manufacturer of brass and bronze tubing, etc., has taken out a permit for a one-story addition to its molding department.

The N. D. Cass Co., Athol, Mass., manufacturer of toys, etc., has awarded a general contract to the Taylor-Wheeler Corporation, Athol, for a four-story addition to be equipped as a finishing plant, reported to cost $100,000.

The Indian Motorcycle Co., Springfield, Mass., is completing plans for the manufacture of motorcycle-taxicabs, a new departure.

The Hunt-Spiller Mfg. Corporation, 383 Dorchester Avenue, Boston, manufacturer of castings, etc., has taken out a permit for a power house to cost about $45,000 with equipment.

The Crompton & Knowles Loom Works, Inc., Grand Street, Worcester, Mass., manufacturer of textile equipment, is having plans drawn for a four-story addition, 40 x 74 ft., to cost $50,000. The L. W. Briggs Co., 314 Main Street, is architect.

Philip R. Pratt, Deep River, Conn., has acquired the interest of Gen. Mathewson W. Potter in the Potter & Snell Co., operating a plant for the manufacture of wire products. The new owner has formed the Philip R. Pratt Mfg. Co., to take over and expand the business.

The Wright & Corson Mfg. Co., Charlotte and Fifth Streets, Bridgeport, Conn., manufacturer of rivets, machine screws, etc., has filed plans for a one-story addition to cost about $22,000.

The Firestone-Apsley Rubber Co., Hudson, Mass., a subsidiary of the Firestone Tire & Rubber Co., Akron, Ohio, has approved an expansion program to include a five-story and basement addition and the installation of additional machinery to cost about $500,000. The Firestone Cotton Mills, Inc., Fall River, Mass., an affiliated interest, will also make enlargement and install additional power and transmission machinery, the entire expansion to cost approximately $250,000. Both companies are headed by Harvey S. Firestone, president of the parent organization.

The Boston & Albany Railroad Co., Boston, will soon ask bids for electric interlocking switching equipment to be installed in connection with station truck improvements at Springfield.

The Central Maine Power Co., Augusta, Me., an interest of the New England Public Service Co., recently formed by Samuel Insull, head of the Commonwealth Edison Co., 72 West Adams Street, Chicago, and associates, has plans for a hydroelectric power development on the Androscoggin River, with initial capacity of 27,000 hp., to be increased later to 36,000 hp. It will cost close to $5,000,000 with machinery, steel tower transmission line, substations, etc. The parent company will also proceed with the construction of five hydroelectric generating stations on the Contoocook River, near Hillsboro, N. H., to cost $3,000,000. The initial plant, to be known as the Jackson station, will cost approximately $750,000.

Pittsburgh

PITTSBURGH, Nov. 16.

MACHINE tool business continues fairly good in this district both as to sales and inquiries. The Youngstown Sheet & Tube Co., which some time ago issued a list for its Indiana Harbor plant, but closed for only a few items, has lately asked for bids on two lathes, two shapers and a milling machine and it is understood will ask for new bids on all other items in the original list which have not been purchased. The R. D. Nuttall Co. purchased two heavy-duty drills and a horizontal boring machine and has several other tools to place. The Union Switch & Signal Co. recently bought six small radial drills. Single tool orders still are fairly numerous and despite the large sums which pending lists total, many sellers prefer the single tool orders as competition is not as sharp as in the larger business.

The Penn Furnace & Stove Co., Fourth Avenue, Warren, Pa., has acquired adjoining property and has plans

under way for a two story and basement addition. Considerable equipment will be required.

Contract has been let by the Clinton Iron & Steel Co., 226 West Carson Street, Pittsburgh, to the Duquesne Slag Products Co., Diamond Bank Building, for a new slag-crushing plant at its Southside works to cost $100,000 with machinery. C. W. Friend is vice-president.

The Pittsburgh Garage Co., Pittsburgh, has acquired property, 90 x 172 ft., on Fourth Avenue for $150,000, and is said to have preliminary plans for a service, repair and garage building to cost approximately a like amount.

The Richmond Radiator Co., Uniontown, Pa., has plans for a one-story addition, 40 x 136 ft., to cost about $40,000. Headquarters are at 1480 Broadway, New York.

The Freedom Oil Works, Inc., Freedom, Pa., is having plans drawn for a one-story addition to its refinery, to cost $80,000 with equipment. Work will begin in the spring. Richard-Irvin & Co., Ferguson Building, Pittsburgh, are architects.

Fire, Nov. 6, destroyed a portion of the plant of the No-Leak Paper Dish Co., Wheeling, W. Va., with loss reported at $150,000 including machinery. It is planned to rebuild.

The United States Engineer, Huntington, W. Va., is taking bids until Nov. 24, for two cast steel blades and one 3¼-in. valve stem, 23 ft. long.

Fire, Nov. 11, destroyed a portion of the tipple at the Reitz No. 3 mine, near Johnstown, Pa., operated by the Reitz Coal Co., with loss reported in excess of $20,000, with equipment.

The Greene Line Interests, West Fifth Street, Huntington, W. Va., Jesse Hughes, superintendent, plans the installation of wharf loading cranes, conveying and other equipment in its proposed terminal buildings on the water front to cost $85,000.

The American Brake Shoe & Foundry Co., 30 Church Street, New York, is said to be considering the construction of a new foundry at Pittsburgh for the manufacture of gray iron and other metal castings, to cost more than $100,000 with equipment.

The Lyons Refining Co., Clarendon, Pa., recently organized, has closed negotiations for the purchase of the refinery of the White Oil Refining Co., on local site, for about $750,000. The new owner will take immediate possession and plans extensions and installation of additional equipment. Col. U. G. Lyons, formerly general manager for the Conewango Refining Co., Warren, Pa., heads the new company; George Higgins is secretary.

South Atlantic States

BALTIMORE, Nov. 16.

PLANS are being arranged by the American Oil Co., American Building, Baltimore, for extensions in its local works, including equipment for storage and handling, to cost more than $75,000.

The J. C. Eichman Mfg. Co., Bush and Wicomico Streets, Baltimore, manufacturer of plumbing equipment and supplies, has filed plans for a one-story addition, 50 x 149 ft. Kubitz & Koenig, Baltimore, are architects.

J. O. Brown, Bedford, Va., has inquiries out for equipment for the manufacture of wood spools and other specialties for textile mills.

The Kimball-Tyler Co., Inc., 261 South Eighth Street, Baltimore, now making extensions at its cooperage plant, is contemplating further additions, with main one-story unit to cost about $200,000 with machinery. It is expected to ask bids on a general contract soon. Kubitz & Koenig, Emerson Tower Building, are architects. W. G. Tyler is president.

The Dalton Brick & Tile Co., Dalton, Ga., is considering enlargements in its plant, and the installation of new kilns, additional mechanical drying equipment of tunnel type, and other machinery. The company recently increased its capital from $33,000, to $100,000 for expansion.

Fire, Nov. 8, destroyed the coal tipple at the property of the Empire Collieries Co., Pulaski, Va., with loss estimated at $60,000 including machinery. Plans for rebuilding are under discussion, without definite decision made as yet.

The Continental Roofing & Mfg. Co., 1200 South Sixteenth Street, Baltimore, has taken out a permit to erect a two-story addition, 70 x 114 ft., for which a contract recently has been let to the Consolidated Engineering Co., Calvert Building. Charles M. Anderson, 9 East Pleasant Street, is architect.

W. I. Anderson, 213 East Washington Street, Greensboro, N. C., and associates will erect an addition to their ice-manufacturing plant at Gaston and Forbes Streets, to cost $120,000 with machinery.

The Haines, Jones & Cadbury Co., 1136 Ridge Avenue, Philadelphia, manufacturer of plumbing fixtures, pipe fittings, etc., will build a two-story factory branch and distributing plant at Biltmore, N. C., 60 x 120 ft., for which bids on a general contract will soon be received.

The Wilson-Hock Co., City Point, Va., machinery dealer, has inquiries out for a 125-hp., stationary engine, belt driven, to operate at 125 lb. steam pressure; also for one 75 to 100-kw. generator, belt driven, three-phase, 60-cycle, 220 volts.

The Southern Gas & Power Corporation, Suffolk, Va., operating the Suffolk Gas & Electric Co., and other properties, is disposing of a stock issue to total $1,500,000, a portion of the proceeds to be used for extensions and improvements. Walter Whetstone is president.

The Blacksburg Ice & Fuel Co., Blacksburg, S. C., is planning the installation of additional ice-manufacturing and affiliated equipment.

The Clinchfield Portland Cement Corporation, Kingsport, Tenn., has plans for enlargements in its mill at Clinchfield, Ga., with the installation of a new rotary kiln, 10 ft. in diameter and 175 ft. long, and other equipment. The capacity will be increased to 1,000,000 bbl. per annum. It is expected to complete the work early in the spring.

The R. S. Armstrong & Brother Co., Atlanta, Ga., machinery dealer, is in the market for a gyratory crusher, size about No. 7, and a 75-hp. motor, slip ring type, 2200 volts, three-phase, 60 cycle.

Fire, Nov. 9, destroyed a portion of the car repair and construction shops of the Atlantic Coast Line Railroad Co., at Rocky Mount, N. C., with loss estimated at $200,000 with equipment. Plans for rebuilding are under consideration. Headquarters are at Wilmington, N. C.

T. C. Coxe, Asheville, N. C., has plans for a three-story automobile service, repair and garage building, 130 x 140 ft., to cost $225,000 with equipment. A. Wirth, Asheville, is architect.

The Town Council, Pinebluff, N. C., plans the installation of a 45-hp. oil-operated engine, speed gear and centrifugal pumping equipment and auxiliary machinery in connection with extensions and improvements in the municipal waterworks. The Virginia Engineering Co., Mutual Building, Richmond, Va., is engineer.

The Hackley-Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a steel guy derrick, 90-ft. boom, 90 to 125-ft. mast, provided with double-drum electric hoist, with capacity of 3 tons, provided with geared swinger; also, for a revolving screen, about 60 in. x 24 ft., one belt type bucket elevator, for use with crusher; several gyratory crushers of different sizes, from No. 12 to No. 4, manganese fitted; and one electric alternator, 200 to 250 kw., three-phase, 60-cycle, direct-connected to steam engine, with switchboard and auxiliaries.

The Smith & Williams Co., Salisbury, Md., has been organized with a capital of $425,000 to take over and expand the local shipbuilding and repair plant heretofore operated under a partnership of Smith & Williams. John Smith heads the new company.

The Sinclair Oil Corporation, 45 Nassau Street, New York, is reported to be contemplating the construction of an oil storage and distributing plant on the Cooper River, vicinity of Charleston, S. C., to cost $75,000 with equipment.

Buffalo

BUFFALO, Nov. 16.

THE Brockway Motor Truck Co., Cortland, N. Y., has awarded a general contract to the Marshall Construction Co., local, for a one-story addition to its plant, 75 x 150 ft., to cost about $70,000. C. W. Clark, Cortland Bank Building, is architect.

Fire, Nov. 6, caused by an explosion, destroyed a portion of the metal japanning works of the Yawman & Erbe Mfg. Co., Rochester, N. Y., manufacturer of office filing cabinets, etc. An official estimate of loss has not been announced.

The Board of Education, Spencerport, N. Y., is considering the installation of manual training equipment in its proposed two-story high school to cost $200,000. Carl Ade, 104 East Avenue, Rochester, N. Y., is architect.

The Peerless Husker Co., 523 Cornwall Avenue, Buffalo, manufacturer of machinery for corn husking, etc., has filed plans for an addition to cost approximately $20,000 with equipment.

F. M. Rich, 94 Parkwood Avenue, Kenmore, N. Y., is considering plans for a one-story building on Chenango Street, Buffalo, for assembling addressing machines, parts, etc., to cost $25,000.

William J. Teere, 1089 Genesee Street, Buffalo, has taken out a permit for a one-story addition to his welding and mechanical shop to cost about $13,000 with equipment.

The Mount Morris Valve Corporation, Mount Morris, N. Y., has plans for a new one-story factory, 45 x 190 ft. Lawrence Bellinger heads the company.

Faul & Timmins, 149 Oak Street, Buffalo, manufacturers of power plant specialties, have filed plans for a second story addition to their present works to cost $14,000. A. C. Faul heads the company.

Hannah & Porter, Inc., Malone, N. Y., recently organized by Joseph B. Hanna and associates with a capital of $50,000, has plans for the establishment of a factory for the manufacture of heating apparatus.

Plans have been filed by the Buffalo Fire Appliance Corporation, 44 Central Street, Buffalo, manufacturer of fire fighting equipment, for a one story concrete addition to cost $10,000.

The W. G. Palmer Co., Oliver Street, North Tonawanda, N. Y., is reported in the market for wood-working machinery and electrical power equipment, to replace that recently destroyed by fire. W. G. Palmer, 293 Goundry Street is head.

Joseph B. Perry, operating the Perry Welding Works, 337 Jefferson Avenue, Rochester, N. Y., is reported in the market for welding machinery and equipment.

The Louisville Cement Co. has awarded contract to the John W. Cowper Co., Buffalo, for the erection of a plant at Akron, N. Y. A machine shop and power house, will also be constructed.

Ohio

REVIVAL of extensive buying of machine tools by the automotive industry was the feature of the Cincinnati market the past week. The Chrysler Motor Corporation, Detroit, purchased seven crankshaft and 12 multi-cut lathes from a Cincinnati builder, while the Buick Motor Co., Flint, Mich., bought six crankshaft and eight multi-cut lathes. Other automobile makers contracted for small lots of machines, including automatic lathes. It is understood that the Cadillac Motor Car Co., Detroit, placed an order with a local builder for two lathes, at the same time purchasing eight lathes from an Eastern manufacturer. Dealers state sales slumped considerably the first half of November as compared with October. The auction sale of approximately 250 machines of the Midwest Engine Co., Indianapolis, this week is expected to have a depressing effect upon the market in this territory.

In Cleveland, local machine tool dealers report a good demand for machines, mostly in single tools, total sales running about the same as in October. Manufacturers of electric furnaces report a marked increase in demand for high temperature industrial heating equipment. The Delco Light Co., Dayton, Ohio, purchased 23 turret lathes from a Cleveland manufacturer, which was the outstanding sale in this territory the past week. This company has placed considerable equipment the past few weeks. The Eaton Axle & Spring Co., Cleveland, bought some additional machinery during the week and has much more to place. The list of the Youngstown Sheet & Tube Co. for a machine shop for its Indiana Harbor works which came out some time ago has been revised and is quite active.

Increased sales of planers have been made by Cincinnati builders. The Cincinnati Planer Co. booked a 36-in. x 10-ft. Hypro motor-driven planer from an Indiana manufacturer and a 30-in. x 8-ft. machine for delivery in Massachusetts. The Louisville & Nashville Railroad closed for a planer the past week. Drill manufacturers state that orders have decreased somewhat, but production is still being maintained on a satisfactory basis. The Wabash Railroad bought a large drill from a local builder. The John Steptoe Co. sold a milling machine to a Chicago company. The Remy Electric Co., Anderson, Ind., and the Westinghouse Electric & Mfg. Co., Pittsburgh, each purchased two lathes. A local turret lathe manufacturer disposed of two machines to a Cincinnati concern. The Ford Motor Co. placed an order for a 24-in. crank slotter with the Niles-Bement-Pond Co.

Although railroads have limited activities to the buying of single machines, increased business from this source is expected. The Louisville & Nashville Railroad is inquiring for seven lathes. It is reported that many machine tool men will assemble in Roanoke, Va., the coming week, anticipating purchases by the Norfolk & Western Railroad against its list issued a month ago.

The National Ice Co., 2014 Freeman Avenue, Cincinnati, will erect a one-story plant at Bank and Kindel Streets, to cost $75,000. B. T. Wisenall, Cincinnati, is architect.

The Southern Railway Co., Washington, will begin the construction of a new terminal yard, with shop facilities at Chattanooga, Tenn., to cost about $1,000,000 with equipment.

The Ducktown Chemical & Iron Co., Ducktown, Tenn., recently formed under Delaware laws with capital of $6,000,000, has acquired the local plant and properties of the Ducktown Sulphur, Copper & Iron Co. The new company has plans for extensions and improvements, with the installation of additional machinery to cost about $300,000. An iron sintering plant is under consideration. W. F. Lamoreaux, Ducktown, is one of the heads of the new organization.

The Kentucky Utilities Co., Louisville, operated by the Middle West Utilities Co., 72 West Adams Street, Chicago, is closing negotiations for the purchase of the plant and property of the Paducah Electric Co., Paducah, Ky., for about $1,800,000. The new owner plans extensions and installation of additional equipment.

The E. A. Prentice Lumber Co., Columbus, Ohio, has work under way on the rebuilding of its planing mill and woodworking plant, recently destroyed by fire, to be two stories, 81 x 120 ft. A power house will also be built. The company is now purchasing machinery.

The City Ice & Fuel Co., Columbus, Ohio, will make extensions in its local plant and install additional machinery. The work will be carried out in connection with an expansion program, including additions in existing plants at Cincinnati, Cleveland, Kankakee, Ill., and Lakeland, Fla. A fund of $1,500,000 has been arranged for the installations. Headquarters are at Cleveland.

The National Quarries Co., Carey, Ohio, has completed plans for new stone-crushing works at Spore, Ohio, to cost $150,000 with equipment.

The Kodel Radio Corporation, 507 East Pearl Street, Cincinnati, has awarded a general contract to the Truscon Steel Co., Cincinnati, for a one-story addition to its factory.

Fire, Nov. 7, caused by an explosion destroyed a portion of the plant and equipment of the France Mfg. Co., 10360 Berea Road, S. W., Cleveland, with a loss of $30,000.

Plans are being completed by the Aetna Rubber Co., Cleveland, manufacturers of battery boxes and insulated rubber products, for a $150,000 factory at Ashtabula, Ohio, adjoining its present plant, which will also be expanded and additional equipment installed.

The Jackson Valve & Mfg. Co., Inc., 1106 Fifteenth Street, Portsmouth, Ohio, which specializes in high pressure steam valves and is planning to build a plant equipped to make and machine steel and iron castings, is in the market for foundry and forge shop equipment.

Chicago

CHICAGO, Nov. 16.

LOCAL dealers are well satisfied with the trend of machine tool purchases and inquiry so far in November. Few large individual orders have been placed, but the market is well sustained by purchases upon the part of many users who require a few tools. Deliveries in certain lines have been extended slightly and prices, which some believe will advance, have remained steady except on one line of drill presses, which was advanced seven and one-half per cent.

The Nash Motors Co. is rapidly closing against its recent inquiries and during the week placed 16 turret lathes and a number of drill press for its Kenosha plant. The International Harvester Co., Chicago, bought two turret lathes and a second-hand drill press and is understood to be making good headway toward the placing of further equipment, much of which is to be special. The A. O. Smith Corporation, Milwaukee, purchased two large vertical boring mills and is still in the market for additional heavy machine tools. The Continental Motors Corporation, Muskegon, Mich., is said to have bought heavily of milling equipment and the Illinois Steel Co., Gary, Ind., completed the purchase of items outstanding against a previous list. The Bucyrus Co., South Milwaukee, bought a 20-ft. vertical boring mill and the Ingersoll Milling Machine Co., Rockford, Ill., contracted for a 30-in. heavy duty lathe. Machine tool equipment recently purchased for the Palmer House, Chicago, included a 15-in. x 8-ft.

lathe, a hack saw, a small pipe machine, a 28-in. drill press, a 14-in. sensitive drill a 2-hp. grinder and several electric tools, such as drills.

Local dealers expect to be present at an auction of the tool equipment of the Midwest Engine Co., Indianapolis, Ind. The trade anticipates that fully 95 per cent of that equipment will be taken by dealers.

The American Can Co., 104 South Michigan Avenue, Chicago, has awarded a general contract to Starrett & Dilks Co., 160 North La Salle Street, for a three-story local plant, 148 x 167 ft. to cost $200,000 with equipment. A portion of the structure will be reserved for storage and distributing service. C. G. Preis, 104 South Michigan Avenue, is architect. Headquarters are at 120 Broadway, New York.

The Dale Valve Co., 1923 Carroll Avenue, Chicago, will soon ask bids for a two-story and basement addition, 100 x 120 ft., to cost $75,000. Joseph C. Llewellyn, 38 South Dearborn Street, is architect. Andrew R. Dale is head.

The Jefferson Ice Co., 515 Bicherdike Street, Chicago, has filed plans for a one-story plant, 76 x 146 ft., to cost about $65,000. E. G. McClellan, 7439 Cottage Grove Avenue, is architect.

The Iowa Light, Heat & Power Co., Carroll, Iowa, is planning extensions and improvements in its power plant at Audubon, Iowa, to include the installation of additional equipment.

The Inland Metal Products Corporation, 1951 North Hermitage Street, Chicago, has awarded a general contract to the John Keeffer Co., 6638 North Maplewood Avenue, for a one-story plant, 90 x 125 ft., to cost $37,000. E. C. Ecker & Associates, 110 South Dearborn Street, are architects.

The Motor Power Equipment Co., 2512 University Avenue, St. Paul, Minn., has revised plans for its proposed two-story works on the Ford Road, 130 x 270 ft., to cost $100,000 with machinery. C. R. Johnson, Capitol Bank Building, is architect. W. W. Logan is vice-president.

The Midland Utilities Co., 72 West Adams Street, Chicago, operating electric power utilities in Indiana and other states, is disposing of a note issue of $3,000,000 a portion of the proceeds to be used for extensions and improvements in power plants and system.

The Northwestern Sash & Door Co., Fergus Falls, Minn., has awarded a general contract to William Schueller, Fergus Falls, for rebuilding the portion of its plant recently destroyed by fire, to be two-stories and basement, 60 x 200 ft., and to cost $75,000 with equipment. W. R. Dennis, 121 Mill Street, is architect.

The Rubberoid Co., Joliet, Ill., manufacturer of roofing products, has awarded a general contract to the Kaiser-Ducett Co., Joliet National Bank Building, for a one-story addition to cost $50,000 with equipment. R. P. Blake is president.

St. Louis

ST. LOUIS, Nov. 16.

CHARLES WILKS, Marquette Hotel, Springfield, Mo., has awarded a general contract to the Truscon Steel Co., Kansas City, Mo., for a one-story foundry, 65 x 200 ft., to cost $20,000. Two traveling cranes will be installed, 5 and 10-ton capacity, respectively.

W. S. Frank, Century Building, St. Louis, architect, has plans under way for a one-story automobile service, repair and garage building, 230 x 232 ft., to cost $150,000 with equipment.

The Acme Brick Co., Mid-Continent Building, Tulsa, Okla., is said to be planning the construction of a plant to cost about $70,000 with equipment. A power house will be built.

Ovens, power equipment, conveying machinery, and other equipment will be installed in the two-story and basement plant, 120 x 125 ft., to be erected at Little Rock, Ark., by the J. O. Patterson Corporation, 3110 Gilham Road, Kansas City, Mo., to cost about $130,000. McKecknie & Trask, Board of Trade Building, Kansas City, are architects.

The Wabash Railway Co., St. Louis, has awarded a general contract to the Roberts & Schaefer Co., 400 North Michigan Avenue, Chicago, for a one-story coaling station at 3963 Clayton Street, St. Louis, to cost approximately $40,000 with equipment.

The Marland Refining Co., Ponca City, Okla., has awarded a general contract to the H. W. Underhill Construction Co., Wichita, Kan., for a one-story machine shop, 90 x 200 ft., and one-story forge and blacksmith shop, 50 x 60 ft., to cost $100,000 with equipment.

The Continental Oil Co., Continental Oil Building, Denver, Colo., plans the construction of a pipe line from its refinery at Farmington, N. M., to its oil-producing properties in the Northwestern section of New Mexico, to cost more than $400,000 with compressor stations, etc.

The Southwestern Sash & Door Co., B Street and Malden Lane, Joplin, Mo., is arranging to rebuild the portion of its plant recently destroyed by fire, to be one-story, 100 x 200 ft., and to cost $65,000 with equipment.

The Common Council, Almyra, Ark., plans the installation of pumping machinery in connection with a proposed municipal waterworks. A steel tank and tower will also be purchased. A. M. Lund, Southern Trust Building, Little Rock, Ark., is engineer.

Anheuser-Busch, Inc., 721 Peslatozzi Street, St. Louis, has plans for extensions and improvements in its ice-manufacturing plant, to cost about $125,000 with equipment. Ophuls & Hill, 112 West Forty-second Street, New York, are architects and engineers.

The State Board of Administration, Capitol Building, Topeka, Kan., will begin the erection of a one-story addition to the State school of mechanical arts, Pittsburg, Kan., 70 x 150 ft.

The Oklahoma Natural Gas Co., Haskell, Okla., is considering rebuilding its compressor plant destroyed by fire Oct. 30 with loss of $200,000.

Milwaukee

MILWAUKEE, Nov. 16.

INDUSTRIAL construction is again being undertaken on a scale that augurs well for manufacturers of foundry and machine shop equipment. While the automotive industries as a whole appear to have placed the major share of requirements until spring, a few of the larger interests are still in the market. The slowing down of automotive demand, however, is being offset gradually by the requirements of other lines, and the current of tool business is not showing much shrinkage on that account. Inquiry is more active, if anything, and represents buyers and users who have done little for some time past.

The Liberty Foundry Co., Fifty-seventh and State Street, Wauwatosa, suburb of Milwaukee, has let the general contract to the William F. Tubesing Co., 373 Broadway, Milwaukee, for a brick and steel shop addition, 80 x 100 ft. The project will call for an investment of about $45,000.

The Kohler Co., Kohler, Wis., has placed with H. Schmitt & Sons, Inc., 430 Farwell Avenue, Milwaukee, the general work of constructing a brass manufacturing building, designed by Brust & Philipp, architects, 495 Broadway, Milwaukee. It will be 82 x 202 ft., and cost about $75,000.

W. S. Wright and Herman N. Boes, Sturgeon Bay, Wis., have formed a partnership to engage in the manufacture of a patented wire clothes line and reel made from 14-gage galvanized material and having integral loops to obviate the need of clothespins when in use. Each line is 50 ft. long.

The F. J. Greene Engineering Works, Racine, Wis., is starting work on the construction of a one-story brick and steel machine shop addition, 50 x 150 ft., to cost about $50,000 with equipment. Edmund B. Funston is local architect. The general contract is in charge of Nelson & Co., 408 Janes Block, Racine.

The Standard Sheet Metal Co., 1411 Thirtieth Street, Milwaukee, is completing purchases of additional equipment for its new plant, which will provide at least four times the production area of the old works. The principal products are sheet metal portable buildings. Joseph J. Mattes is president.

The Manitowoc Church Furniture Co., Waukesha, Wis., has awarded contracts for an additional building, 75 x 200 ft., part two stories and basement, at 1214 Lincoln Avenue. It will install considerable new wood-working tools and special machinery for carving and engraving. The aggregate cost will be about $65,000.

The Sommers & Sons Co., Milwaukee, has been organized with $10,000 capital stock by F. X. Sommers and associates to engage in copper smithing and other metal-working business. The plant is at 3216 Vliet Street and under the corporate form the owners intend to make material enlargement.

The Igo Mfg. Co., Pearl and Main Streets, Kenosha, Wis., formerly of Waukegan, Ill., is in the market for a number of motor-driven tools for the production department of its automobile bumper division. It also is installing

additional electro-plating equipment for a commercial job plating shop.

The Claus Automatic Gas Cock Co., Becker and Booth Streets, Milwaukee, has contracted with the Thomas Siderits Co., 1591 Second Street, local, for the erection of a one-story extension, 104 x 127 ft., costing about $75,000.

The Gedemer Tool & Machine Co., Racine, Wis., has been incorporated with $10,000 capital stock to succeed to a partnership business among William and Frank J. Gedemer and E. F. Buelow, 1920 Taylor Avenue, manufacturing tools, dies, jigs, fixtures, special machinery and doing a custom machine shop business generally. Improvements to the present plant are in immediate prospect.

The P. B. Yates Machine Co., Beloit, Wis., has concluded negotiations for the purchase of the plant and business of Baxter D. Whitney & Son, Inc., Winchendon, Mass., manufacturer of wood-working machinery. Possession will be taken about Jan. 1.

The International Harvester Co., 748 Park Street, Milwaukee, has let the general contract to the Raulf Co., 428 Grand Avenue, local, for a one-story manufacturing building, 144 x 200 ft., adjacent to building No. 43. This is the first enlargement of the Milwaukee harvester works in several years and is attributable to the general improvement in the agricultural equipment demand. Paul F. Schryer is general manager.

The Seeboth Brothers Co., 111 Reed Street, Milwaukee, dealer in scrap metals and waste materials, is starting construction work on a two-story shop addition, 50 x 100 ft., to be equipped with scrap handling equipment and tools. An elevator also will be required.

E. R. Liebert, architect, 49 Oneida Street, Milwaukee, has been engaged by clients whose identity is temporarily withheld, to design a manufacturing plant which will cost about $150,000. The main factory will be of brick and mill construction, three stories, 53 x 120 ft., with a two-story engine house, 40 x 60 ft., a three-story warehouse and office building, 40 x 100 ft., and one or two smaller structures. Work on the office, warehouse and power plant will be undertaken as quickly as possible and the factory erected early next spring.

The Northwestern Malleable Iron Co., 756 Park Street, Milwaukee, is taking bids for the construction of additions costing about $125,000. The principal item is a new annealing building, with a continuous type oven, 20 x 202 ft., replacing twelve ovens of the old type. A large electric crane will be installed. W. C. MacMahon is vice-president in charge.

The Little Rapids Pulp Co., Kaukauna, Wis., will build a $200,000 ground wood pulp mill at Manitoulin Island, near Kagawong, Ont. The general contract has been placed with W. E. Ule & Co., Stevens Point, Wis.

The Milwaukee Department of Public Works, City Hall, is considering contractors' bids on a temporary machine shop to be erected at the North Point pumping station, Eleventh and North Avenues, at a cost of $30,000, including equipment for servicing boilers, engines, etc. Bids on the tools and machinery will be taken within a short time. R. E. Stoelting is commissioner of public works.

Detroit

DETROIT, Nov. 16.

AN award for a one-story addition, 30 x 90 ft., has been made by the Knape & Vogt Mfg. Co., Muskegon and Richmond Avenues, Grand Rapids, Mich., to B. Hogan & Son, Grand Rapids, to cost about $35,000. The company manufactures cabinet hardware. W. H. McCarty, 21 Market Street, is architect.

The Ypsilanti Foundry Co., Ypsilanti, Mich., manufacturer of grey iron castings, plans the erection of two one-story foundries, 100 x 100 ft. and 50 x 82 ft., respectively.

The Fisher Body Corporation, General Motors Building, Detroit, has work under way on enlargements in its plant at Pontiac, Mich., to increase the present floor space about 60,000 sq. ft., estimated to cost $500,000 with machinery.

The Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has acquired property on Trumbull Street, fronting on the Michigan Central Railroad, Detroit, totaling 100,000 sq. ft., and plans the erection of a new factory branch and distributing works to cost close to $400,000 with equipment.

The Detroit Ice Co., 1635 Westminster Avenue, Detroit, has plans for a one-story plant on Beaubien Avenue, 96 x 180 ft., to cost $70,000 with machinery. The Westerlin & Campbell Co., 1113 Cornelia Avenue, Chicago, are architects.

The Flint Foundry Co., Flint, Mich., is arranging to rebuild the portion of its plant recently destroyed by fire, with loss of about $50,000 including equipment.

The A. C. Spark Plug Co., Flint, Mich., will begin the manufacture of automobile accessories at its local plant, which is being expanded to accommodate the increase. The initial manufacture will be devoted to a line of mufflers and heaters, for which patent rights were recently secured from the Gray-Hawley Co.

The Buick Motor Co., Hamilton Avenue, Flint, Mich., will soon ask bids on a general contract for a one-story addition, 90 x 300 ft., to cost about $80,000.

The Murray Body Corporation, Bay City, Mich., manufacturer of automobile bodies, has plans for a one-story addition to cost about $30,000.

The Hudson Motor Car Co., 12601 Jefferson Avenue, Detroit, will soon begin the construction of a new two-story power house, 63 x 70 ft., to cost approximately $60,000 with equipment. Albert Kahn, Marquette Building, is architect.

The City Council, Decatur, Mich., plans the installation of additional pumping equipment at the municipal waterworks.

The Riverside Forge & Machine Co., Jackson, Mich., has awarded a general contract to the Austin Co., Chicago, for a one-story addition, 40 x 125 ft., to cost about $27,000.

The Lakey Foundry Co., Muskegon, Mich., manufacturer of iron castings, has filed plans for a one-story addition to cost about $30,000 with equipment.

The Baldwin Rubber Co., Pontiac, Mich., is planning a one-story addition, 70 x 90 ft., to cost $35,000.

The Grand Rapids Show Case Co., 100 Goldbrook Street, Grand Rapids, Mich., has awarded a general contract to Paul A. Mastenbrook, Michigan Trust Building, for the first unit of a proposed new plant at Bedford, Mich., two stories, 100 x 125 ft. F. D. Young is president.

Indiana

INDIANAPOLIS, Nov. 16.

SUPERSTRUCTURE work will begin for a new one-story plant for the Acme Acetylene Co., Indiana Harbor, Ind., manufacturer of industrial acetylene apparatus, to cost $25,000 with equipment.

The Standard Forgings Co., Indiana Harbor, Ind., is said to be planning the construction of a one-story foundry, to cost $25,000. It is expected to begin work next year.

In connection with its recent purchase of the plant and business of the Scaar-Baumel Co., Rochester, Ind., the Chicago Nipple Mfg. Co., West Kinzie Street, Chicago, will remodel the acquired works, providing facilities for the removal of its present metal stamping at Chicago to this location, where the output will be increased. The Indiana plant has been devoted to pipe and pipe coil manufacture which will be continued by the new owner.

The Illinois Glass Co., Alton, Ill., has plans for a one-story steam power house at its works at Gas City, Ind., to cost $200,000 with equipment. Jackson & Moreland, 31 St. James Avenue, Boston, are architects and engineers.

The Richmond Cabinet Co., Richmond, Ind., has begun the erection of a two-story factory, 80 x 95 ft., and plans the early installation of equipment. It is reported to cost $22,000.

William Johann, general manager of the Evansville Planing Mills, Evansville, Ind., has acquired the wagon plant of William T. Karges, for $75,000. The new owner will enlarge the plant and install machinery for the manufacture of automobile bodies.

The Board of School Trustees, Terre Haute, Ind., will soon take bids for a one-story addition to the manual training department of the high school at Thirteenth and Locust Streets, 15 x 120 ft., to cost about $50,000. It will be equipped for instruction in automobile repair and machine work. Johnson, Miller, Miller & Yeager, 30 North Fifth Street, are architects.

The Standard Oil Co. of Indiana, Lord Street, Indianapolis, has plans for a new storage and distributing plant on South Harding Street, to cost about $150,000 with equipment. Schlinz & Bailey, 53 West Jackson Boulevard, Chicago, are architects. The company will also build a boiler plant at Evansville to cost $100,000.

The Endris Mfg. Co., New Albany, Ind., manufacturer of furniture, will remodel a building at Vincennes, Ind., for a new factory at a cost of $75,000. J. P. Endris, Jr., care of the Interstate Public Service, Indianapolis, is president. Earle Embrey, New Albany, is architect.

The Hartford City Paper Co., Hartford City, Ind., has plans under way for a one-story addition, 40 x 46 ft., to be used as a turbine building. The Green Engineering Co., General Motors Building, Detroit, is engineer.

The Jennings Mfg. Co., Inc., North Vernon, Ind., recently incorporated, is manufacturing a patented foot-control dustpan in its own factory.

The George M. Diehl Machine Works, Wabash, Ind., has under construction a two-story brick addition, which is being built south of the main factory.

The Holt & Brandon Cold Storage Co., Ninth and Walnut Streets, Evansville, Ind., will build an addition to its ice-manufacturing plant, 39 x 120 ft., to cost $115,000. H. Gilbert Karges, Furniture Building, Evansville, Ind., is architect.

The Merchants Heat & Light Co., Meridian and Washington Streets, Indianapolis, has plans for a new power substation, remodeling and equipping an existing structure and the installation of a machine and repair shop. Charles Brossman, Merchants Bank Building, is engineer.

Gulf States

BIRMINGHAM, Nov. 16.

WORK is under way on enlargements in the Dalhart locomotive shops of the Rock Island Railroad Co., Dallas, Tex., including addition to machine shop, engine house, oil works and other buildings, to cost more than $100,000 with equipment. An electric-operated drop table will be installed.

The LoForti Brick Co., Hialeah, Fla., recently organized by Joseph LoForti, Hialeah, and associates, contemplates the erection of a plant for the manufacture of concrete bricks and blocks, to cost about $45,000 with equipment. The company is capitalized at $300,000.

The Roman Furniture Mfg. Co., Miami, Fla., has awarded a general contract to the Remberg Co., Mami, for a three-story plant, 42 x 150 ft., to cost about $40,000.

Fire, Nov. 12, destroyed a portion of the cotton compress plant of the Corinth Compress Co., Corinth, Miss., with loss estimated at $750,000 with equipment and stock. Plans for rebuilding are under consideration.

The Sinton Electric & Ice Co., Sinton, Tex., is arranging for the erection of a one-story ice-manufacturing plant to cost $90,000 with machinery. Owen McCall is general manager.

The Board of Education, San Antonio, Tex., plans the installation of manual training equipment in its proposed one and two-story junior high school, for which revised plans are being prepared, to cost $250,000. Phelps & DeWees, Gunter Building, are architects.

The Tampa Portland Cement Co., Tampa, Fla., recently formed by John L. Senior, James Building, Chattanooga, Tenn., and associates, has awarded a general contract to the Cowham Engineering Co., 111 West Monroe Street, Chicago, for the initial units of its proposed Tampa mill to cost $850,000. Machinery awards will be placed soon. A power house will be built.

The Lone Star Gas Co., Dallas, Tex., plans extensions in its pipe lines and properties to cost about $3,000,000.

The Crystal Ice Co., Denton, Tex., recently organized, has acquired a site for a proposed ice-manufacturing plant to cost $40,000 with equipment. Work will begin early next year. E. R. Brinkley, Sulphur, Okla., is head.

Bids will be received by the City Commission, Jacksonville Beach, Fla., until Dec. 10 for three centrifugal pumping units, electric and gasoline drive, with 100,000-gal. steel water tank and tower. The George B. Hills Co., Jacksonville, is engineer. Neal Finkelstein is chairman of the commission.

The Hollywood Land & Water Co., Hollywood, Fla., contemplates building a new ice-manufacturing and cold storage plant, 95 x 250 ft., to cost about $150,000 including machinery. J. W. Young is president.

The Louisiana Public Service Co., New Iberia, La., is completing arrangements for extensions and betterments in its electric light and power plants at DeQuincy and Eunice, La., recently acquired, and the installation of additional machinery. J. G. Hix is president.

The Atlas Portland Cement Co., Leeds, Ala., has work in progress on a new unit at its local mill, to include the installation of a kiln, conveying and handling equipment, etc., to cost $200,000 with machinery. The main plant is at Northampton, Pa.

The Evans Mfg. Co., 204 Texas Building, Jackson, Miss., has inquiries out for machinery for the manufacture of tire pumps and kindred equipment.

The Atlantic Ice & Coal Corporation, Prince Street, Montgomery, Ala., has preliminary plans for extensions and improvements in its ice-manufacturing plant and the installation of machinery to cost $85,000. G. E. Tillman is manager.

The Chamber of Commerce, Palmetto, Fla., is arranging for a municipal bond issue for the installation of a city-owned electric light and power plant. A fund of about $300,000 will be used for this and other municipal improvements. The work will be carried out under the direction of the City Council.

The United States Property and Disbursing Officer, Camp Mabry, Austin, Tex., will receive bids until Dec. 10 for a pumping plant at the camp site of the Texas National Guard, Palacios, including one 50-hp. gasoline engine, one centrifugal pump, air compressor, friction clutches, transmission equipment, etc.; also one air pump and 50,000-gal. steel water tank and tower.

The Houston Wire Bound Box Co., Houston, Tex., has plans for a one-story building on Moffitt Street to cost $20,000.

W. Van Slyke & Co., Reynolds Building, Fort Worth, Tex., architects, have plans for a three-story automobile service, repair and garage building, 60 x 200 ft., to cost $150,000 with equipment.

The Clewiston Iron Co. has been incorporated to establish a fabricating steel plant at Clewiston, Fla. The company has purchased machinery, now ready for installation, and the plant is to have a monthly capacity of 1500 tons of steel work for buildings, bridges, and light ornamental iron work. The company proposes also to carry builders' and contractors' hardware.

Canada

TORONTO, Nov. 16.

BUSINESS in machine tools in this market is active with good demand for miscellaneous equipment. While the greater part of the buying is for replacement, orders are also coming in for new works and additions. Lathes and other tools for automobile repair shops have been moving freely. Many buyers are asking for rebuilt tools, although there is also a good call for new lines of labor and time saving machines. Wood-working and electrical equipment are in strong demand and several large projects are under way for which equipment is still to be purchased.

The Rose Excelsior Products, Ltd., Lindsay, Ont., has taken over the business now carried on at Pickering, Ont., under the same name and proposes to build a new factory for the manufacture of boxes, barrels, cases, etc. The company has been incorporated with a capital stock of $150,000, with Thomas H. Stinson, Alexander M. Fulton, John E. Anderson and others of Lindsay, Ont., as provisional directors.

The Lincoln Electric Co. of Canada, 136 John Street, Toronto, has purchased a factory at 67 Bellwoods Avenue and proposes to remove its present business to this location and install additional machinery. It will be ready for operation in April.

The Kirkwood Mfg. Co., Preston, Ont., has taken over the plant and equipment of the Electrical Fittings & Foundry Co., local, and is equipping it for the manufacture of electric conduit fittings, drawn steel switches and outlet boxes, ornamental lighting fixtures, etc., also grey iron castings.

The L. A. Young Industries of Canada, Ltd., Windsor, Ont., has taken over the plants of the Ideal Fence & Spring Co. and the Leggett & Platt Spring Bed Co. It has completed plans for an addition to the factory of the Ideal company, 100 x 140 ft., of reinforced concrete, which will be completed by January. Equipment from the Leggett plant will be moved to the new premises.

Construction has been started on the $6,000,000 power plant and dam at Chelsea, Que., and on a newsprint mill at East Templeton, Que., for the International Paper Co.

B. Swartz, 336 Dundas Street West, Toronto, is receiving bids for the erection of a garage and workshop. Equipment will be purchased later.

Robert Bury & Co. of Canada, Ltd., 1 Spadina Avenue, Toronto, has started the erection of a lumber mill. Walter Shaw, 21 Oakmount Road, is architect and is in charge of the work. Equipment will be purchased.

The planing mills of the George B. Eddy Co., Bathurst, N. B., were destroyed by fire with a loss of $50,000. The owners will rebuild.

The coal briquette plant of the Toronto Coal Briquetting Co., foot of Cherry Street, Toronto, was destroyed by fire with loss estimated at $50,000. There has been no decision about rebuilding.

Western Canada

Bids will be received by the city clerk, C. J. Brown, City Hall, Winnipeg, until Dec. 21 for the following equipment for the electrification of the high pressure plant: Two motor-driven centrifugal pumping units of 1800 Imperial gal. per min. capacity; four 400-hp. three-phase induction motors; four chain or gear drives to transmit 500 hp. to high pressure engine shafts. Specifications are with the city engineer, 223 James Street.

Pacific Coast

SAN FRANCISCO, Nov. 11.

PLANS are being considered by the E. N. Easton Corporation, San Francisco, and 805 Great Republic Life Building, Los Angeles, for a new can-manufacturing plant in the Los Angeles harbor district, to cost $75,000 with machinery. Carl J. Gordon is vice-president and general manager.

The Mann Mfg. Co., 454 Golden Gate Avenue, San Francisco, has awarded a general contract to the Austin Co. for a two-story machine shop at Berkeley, Cal., to cost about $50,000 with equipment.

The Marin Municipal Water District, San Rafael, Cal., plans the installation of pumping machinery in connection with proposed extensions and improvements in plant and system, for which a bond issue of $1,500,000 is being arranged.

The Crown-Willamette Paper Co., Pittock Building, Portland, has plans for the construction of a new wood pulp mill in the vicinity of Longview, Wash., to cost $85,000 with equipment.

The Pacific Gas & Electric Co., 445 Sutter Street, San Francisco, has plans for a proposed hydroelectric power development on the Pit River, Shasta County, to be known as Pit River power plant No. 4, to cost $1,750,000. A power dam and intake also will be constructed. The company is also arranging for the construction of a hydroelectric generating station at the Melones reservoir project, near Oakdale, Cal., to be carried out in conjunction with the Oakdale and South San Joaquin Irrigation Districts, estimated to cost $2,500,000.

R. J. O'Brien, Alexander Building, San Francisco, has plans for a two-story machine shop to cost about $21,000. Albert W. Burgren, 110 Sutter Street, is architect.

The Utah-Apex Mining Co., Bingham, Utah, will make extensions and improvements in its local zinc concentrating mill, including the installation of zinc separating equipment and other apparatus.

The Clearwater Timber Co., Lewiston, Idaho, is completing plans for a new mill in the vicinity of Porter Island. The works will include a machine shop and power house and will cost close to $175,000 with equipment. Philip Weyerhaeuser is vice-president and general manager.

The Salt River Valley Water Users' Association, Phoenix, Ariz., will begin the construction of a hydroelectric power plant at the Morman Flat dam, to cost about $400,000. C. C. Cragin is chief engineer.

The Santee Garage Co., Los Angeles, will proceed with the construction of a six-story service, repair and garage building on Santee Street, 100 x 160 ft., to cost $365,000 with equipment. A building contract has been awarded to the Pinner Construction Co., 406 Lankershim Building.

The Soda Potash Products Co., Riverside, Cal., has awarded a general contract to the Union Engineering Co., Bartlett Building, Los Angeles, for a new plant consisting of ten one-story units, each 100 x 200 ft., to cost $900,000 with equipment.

The Feather River Power Co., San Francisco, is completing plans for the construction of a hydroelectric power house at Bucks Ranch, Plumas County. It recently secured permission to issue bonds for $5,500,000 to carry out the project.

Foreign

THE Finnish Government, Helsingfors, Finland, is contemplating the construction of a new sulphuric acid and super-phosphate plant at Wilmannstrand, to cost about $180,000, of which approximately $140,000 will be used for the purchase of additional machinery. It is also proposed to expand the present plant at Kotka at a cost of $75,000, including new equipment. The American Consulate, Emil Kekich, assistant trade commissioner, Helsingfors, has information regarding the project.

The American Metal Co., 61 Broadway, New York, has work under way on a new plant for lead and silver production at Zacatecas, Mexico. It has contracted for the entire output of lead and silver ores from the mines of the Cia International Minera Sociedad Anonoma in Mexico.

The Irving Iron Works Co., Long Island City, N. Y., will have an exhibit at the New York Power Show in the first week of December. The company will be represented by E. Brodhead, sales manager, and by F. C. Yale, J. H. Miller, C. S. Line and Wm. Noblett, sales engineers. The display will consist of a working installation of Irving "subway" open steel flooring and steel safety steps.

Industrial Finance

A new issue of $1,040,000 of 7 per cent preferred stock of the St. Louis Car Co. has been announced as the final step in the reorganization of the company under which Edward B. Meissner, president, gains control of the corporation through personal holdings of more than 51 per cent of the stock. He recently purchased the interest of the late John I. Beggs for approximately $2,500,000.

The Central Steel Co., Massillon, reports net earnings for the third quarter of $937,887 after interest charges and depreciation but before deduction of Federal taxes. This is equivalent after preferred dividends to $3.69 a share on the common stock as compared with $2.09 in the third quarter last year. Earnings for nine months after preferred dividends aggregated $2,551,963, equivalent to $10.43 a share on the common stock against $2,327,433 or $9.32 per common share in the corresponding period last year.

The National Acme Co., Cleveland, reports net sales of $2,178,616 for the quarter ending Sept. 30, as against $1,302,670 in the same period last year. Net profits after deducting bond interest and depreciation were $199,722 in the third quarter as compared with a deficit of $177,398 in the corresponding quarter last year. For the first nine months of this year the company's net sales amounted to $6,600,695, against $5,610,262 in the first three quarters of 1924.

Assets of the Stowell Co., South Milwaukee, Wis., manufacturer of malleable castings, hardware, etc., have been placed in the hands of a committee of three trustees, Fred L. Sivyer of the Northwestern Malleable Iron Co. and T. H. Spence, attorney, Milwaukee, and Fred W. Rogers of the South Milwaukee Bank. It is stated that the concern is solvent and can pay its indebtedness in full. However, material losses were sustained during the past two years and, at a recent stockholders' meeting, it was decided to assign the property to the trustees named. They are authorized to liquidate the business for the benefit of the creditors and to pay to the stockholders the balance realized. The plant will be operated under the supervision of the trustees, to fill incompleted contracts. Total assets are believed to be nearly three times total liabilities.

Philip Binzel, Oconomowoc, Wis., has bid in the entire assets of the Sturgeon Bay, Wis., Drv Dock Co., at foreclosure sale, for $30,027. The purchaser is one of the principal stockholders in the concern.

The Crawford-McCrimmon Machine & Foundry Co., Muncie, Ind., has been thrown into receivership upon petition of the creditors. The plant is worth $300,000 and liabilities are estimated at only $120,000, the receivership being due to lack of working capital.

The Trumbull Steel Co. has sold to bankers, who in turn are offering for public subscription, $13,000,000 15-year first mortgage sinking fund 6 per cent bonds dated Nov. 1 and maturing in 1940. Amounts derived from the sale of these bonds and of $5,000,000 7 per cent ten-year debenture bonds, already underwritten, will be used to fund the company's current indebtedness, incurred chiefly in connection with making extensive permanent improvements to its properties. The company's capitalization now consists of the two bond issues, $15,000,000 7 per cent cumulative preferred stock, par $100, and 1,500,000 shares of common stock having no par value. Of the authorized preferred stock, $9,998,700 are outstanding, and of the common, 576,798 shares.

Final accounting of Henry C. Camp, trustee Connors Tool Co., Southington, Conn., has been accepted by the referee in bankruptcy, and a final dividend of 6 per cent has been ordered paid. A prior dividend of 5 per cent was paid.

Shareholders of the New Britain Machine Co., New Britain, Conn., have under consideration a plan for the reorganization of its share capitalization, which includes the exchange of the 79,142 shares of common stock outstanding, par $25 a share, for an equal amount of new common stock having no par value; the exchange of old 8 per cent preferred stock for new Class A 7 per cent preferred shares; and the creation of Class B shares to replace those old preferred shares not changed into Class A. The new Class A stock will have a preference over Class B in the matter of dividends. The company has not paid dividends on its preferred shares for some time, but has built up a sinking fund of something more than $325,500.

The Detroit Conveyor & Machine Co., 5821 West Jefferson Ave., Detroit, has been organized with a capital of $10,000 to manufacture conveyors of all types, bucket elevators, and material handling equipment. This concern does not intend to build a plant at present but has equipped a leased property to fabricate the product.

Current Metal Prices

On Small Lots, Delivered from Stocks, New York

THESE prices are given for the convenience of small-lot buyers whose requirements do not run into mill-size orders.

Only base prices can be listed in some cases, due to limits of space; other items of a given group are deducible from the base price.

The prices which are quoted below are those at which small lots may be bought, whether from jobbers' or other stocks.

Complete market reports and prices on large shipments from mills will be found elsewhere under "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates

	Per Lb.
Bars:	
Refined iron bars, base price	3.24c.
Swedish charcoal iron bars, base	7.00c. to 7.25c.
Soft steel bars, base price	3.24c.
Hoops, base price	4.49c.
Bands, base price	3.99c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base	3.34c.
Channels, angles and tees under 3 in. x ¼ in. base	3.24c.
Steel plates, ¼ in. and heavier	3.34c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger	3.30c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)	3.65c.
Toe-calk, ½ x ⅝ in. and larger	4.20c.
Cold-rolled strip, soft and quarter hard	6.25c. to 6.75c.
Open-hearth spring steel	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds and hex	4.00c.
Squares and flats	4.50c.
Standard tool steel, base price	15.00c.
Extra tool steel	18.00c.
Special tool steel	23.00c.
High-speed steel, 18 per cent tungsten	70c.

Sheets

Blue Annealed

	Per Lb.
No. 10	3.89c.
No. 12	3.94c.
No. 14	3.99c.
No. 16	4.09c.

Box Annealed—Black

	Soft Steel C. R. One Pass Per Lb.	Long Terne Sheets Per Lb.
Nos. 18 to 20	3.95c.	5.75c.
Nos. 22 and 24	4.20c.	5.90c.
No. 26	4.25c.	6.05c.
No. 28*	4.35c.	6.35c.
No. 30	4.55c.	6.85c.

Galvanized

	Per Lb.
No. 14	4.45c. to 4.60c.
No. 16	4.60c. to 4.75c.
Nos. 18 and 20	4.75c. to 4.90c.
Nos. 22 and 24	4.90c. to 5.05c.
No. 26	5.05c. to 5.20c.
No. 28*	5.35c. to 5.50c.
No. 30	5.85c. to 6.00c.

No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe

Standard Steel	Black	Galv.	*Wrought Iron*	Black	Galv.
⅛ in. Butt	46	29	⅛ in. Butt	4	+19
¼ in. Butt	51	37	¼ in. Butt	11	+ 9
1-3 in. Butt	53	39	1-1½ in. Butt	14	+ 6
2½-6 in. Lap	48	35	2-in. Lap	5	+14
7 & 8 in. Lap	44	17	3-6 in. Lap	11	+ 6
11 & 12 in. Lap	37	12	7-12 in. Lap	3	+16

Bolts and Screws

Machine bolts, cut thread, 40 and 10 per cent off list
Carriage bolts, cut thread, 30 and 10 per cent off list
Coach screws, 40 and 10 per cent off list
Wood screws, flat head iron, 80, 20, 10 and 5 per cent off list

Steel Wire

Base Price† on No. 9 Gage and Coarser	Per Lb.
Bright, basic	4.10c. to 4.25c.
Annealed, soft	4.35c. to 4.50c.
Galvanized, annealed	5.00c. to 5.15c.
Coppered, basic	5.00c. to 5.15c.
Tinned, soft Bessemer	6.00c. to 6.15c.

†Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	19⅝c. to 20⅝c.
High brass wire	20⅛c. to 21⅛c.
Brass rods	17⅜c. to 18⅜c.
Brass tube, brazed	27⅝c. to 28⅝c.
Brass tube, seamless	24¼c. to 25¼c.
Copper tube, seamless	25¼c. to 26¼c.

Copper Sheets

Sheet copper, hot rolled, 23¼c. to 24¼c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin Grade "AAA" Charcoal 14x20	Bright Tin Grade "A" Charcoal 14x20	Coke—14x20	Prime	Seconds
		80 lb.	$6.15	$5.90
		90 lb.	6.30	6.05
		100 lb.	6.45	6.20
IC	$11.25	$8.85	IC	6.65	6.40
IX	12.85	10.85	IX	7.85	7.60
IXX	14.40	12.55	IXX	9.00	8.75
IXXX	15.75	13.85	IXXX	10.35	10.10
IXXXX	17.00	15.05	IXXXX	11.35	11.10

Terne Plates

8 lb. coating, 14 x 20

100 lb.	$7.00 to $8.00
IC	7.25 to 8.25
IX	8.25 to 8.75
Fire-door stock	9.00 to 10.00

Tin

Straits, pig	65½c. to 66½c.
Bar	69½c. to 71½c.

Copper

Lake ingot	16¾c.
Electrolytic	16½c.
Casting	16 c.

Spelter and Sheet Zinc

Western spelter	10¾c.
Sheet zinc, No. 9 base, casks	13¼c.; open, 13¾c.

Lead and Solder*

American pig lead	10¾c. to 12¾c.
Bar lead	12¾c. to 13¾c.
Solder, ½ and ½ guaranteed	40½c.
No. 1 solder	37½c.
Refined solder	31c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.	75c. to 90c.
Commercial grade, per lb.	35c. to 50c.
Grade D, per lb.	25c. to 35c.

Antimony

Asiatic	21½c. to 22½c.

Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), ingots for remelting, per lb. 30½c. to 31½c.

Old Metals

Business is fair. Dealers' buying prices are as follows:

	Cents Per Lb
Copper, heavy crucible	12.25
Copper, heavy wire	12.00
Copper, light bottoms	9.75
Brass, heavy	7.25
Brass, light	6.25
Heavy machine composition	9.00
No. 1 yellow brass turnings	8.75
No. 1 red brass or composition turnings	8.25
Lead, heavy	8.25
Lead, tea	6.25
Zinc	5.50
Cast aluminum	19.50
Sheet aluminum	19.50